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AT THE



UNIVERSITY OF
TORONTO PRESS

THE MEDICAL NEWS

A WEEKLY JOURNAL OF MEDICAL SCIENCE

Vol. 87.

New York, Saturday, October 7, 1905.

No. 15.

ORIGINAL ARTICLES.

THE CONSIDERATION OF LATE HEREDITARY SYPHILIS.

BY E. A. STANFORD, M.D.,

PROFESSOR OF SKIN AND VENEREAL DISEASES, CHICAGO POLYCLINIC;
ACADEMICIAN IN CHIEF, CHICAGO HOSPITAL.

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On several occasions, cases of from five to eighteen years of age have been shown at meetings of the Chicago Dermatological Society, who presented undoubtedly evidence of tertiary syphilis without a history of congenital infection or previous eruptions of syphilis and in whom none of the triad symptoms of hereditary syphilis was present. In

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as was apparent that a difference of opinion existed as to whether there were cases of extragenital infection, or cases of long periods of latency in hereditary syphilis. The question which arose was: Can hereditary syphilis manifest itself for the first time some years after birth by the presence of such late lesions as tertiary syphilis, and with a total absence of the triad symptoms?

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That long periods of latency is one of the chief characteristics of acquired syphilis there can be no doubt, as we all have seen cases in which from ten to twenty years have elapsed from the time the disease was acquired until the tertiary symptoms appeared.

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If long periods of latency may occur in the acquired form of syphilis, why may they not occur in hereditary syphilis? Syphilis is the same whether acquired by the individual himself directly, or transmitted to him by his parents at the time of conception. One might expect to find in hereditary syphilis, and if long periods of latency do not occur, then this form of the disease differs from ordinary or acquired syphilis.

While it often may be extremely difficult to establish the fact that children, born of syphilitic parents and exhibiting late lesions, may not have had other lesions early in life, still such cases are not infrequently met with. They must, however, be very carefully scrutinized, in order to avoid error. The case with which one may be deceived in this matter is illustrated by the following cases: I have under observation at the present time several children who presented symptoms of hereditary or congenital syphilis at the time of birth, but who are entirely free from evidence of the disease at the present time. Were these children to be observed at the age of twenty years, and lesions of syphilis be found present, these children never having been informed by their parents or physician that they were born

with the disease would naturally give a negative history, and their cases would be misclassified or accepted as cases of acquired syphilis.

In considering a large number of hereditary syphilis, there are only two systems of the triad of syphilis, which occur only with congenital cases as of the syphilitic triad. These are the triad of Hutchinson's teeth, interstitial keratitis, and a particular form of deafness.

Let us consider these triads in order. Great stress has been laid upon the diagnostic value of the Hutchinsonian teeth, but they in themselves are the manifestations of inherited taint, and are acquired in no other sense. They are not present in the first or temporary teeth, but in the second or permanent teeth, which do not appear until the child is nearly four, and are a strong indication of syphilis when present. Dr. Wright has reported a case of a boy who presented the central incisors notched from one side with the lateral incisors wanting, a condition which is not described elsewhere. The boy was followed a short time, and showed a congenital adenopathy. Again, the Hutchinsonian teeth are present in only a minority of those who are the subjects of inherited syphilis. It is unquestionably true that teeth of the Hutchinsonian type may not infrequently be seen in the mouths of those who have suffered from a severe inherited taint.

Interstitial keratitis is (perhaps the most frequent of Hutchinson's triad), and occurs usually between the ages of six and fifteen years; but, unlike the Hutchinsonian teeth, it may appear as early as the second or third year of life. Much of this keratitis may be due to infection, but a differentiation between these two etiological factors can be made in the effects on the cornea.

Labyrinthine or central deafness, depending possibly upon lesions of the auditory nerve, is most frequently met with in children about the age of puberty, but in adults and sometimes is present by the following symptoms: It is, as a rule, bilateral in its beginning, but after a shorter or longer period varying from a few weeks to years, and the other ear becomes affected; deafness is at first gradual and advances rapidly; it is accompanied by tinnitus or discharge, and is accompanied by other otitis media phenomena only a minority. The patient complains of noises, dizziness, and sometimes even attacks of vertigo occur. The deafness is usually progressive, and the voice becomes more and more absolute. It is not improved by any special treatment.

While the above mentioned lesions are of great

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no. 15-27

A WEEKLY MEDICAL JOURNAL

VOLUME 87

OCTOBER - DECEMBER, 1905

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NEW YORK, SATURDAY, OCTOBER 7, 1905.

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ORIGINAL ARTICLES.

THE CONSIDERATION OF LATE HEREDITARY SYPHILIS.

BY R. R. CAMPBELL, M.D.,
OF CHICAGO;

PROFESSOR OF SKIN AND VENEREAL DISEASES, CHICAGO POLYCLINIC;
DERMATOLOGIST TO PASSAVANT MEMORIAL HOSPITAL.

ON several occasions young girls of from five to eighteen years of age have been shown at meetings of the Chicago Dermatological Society, who presented undoubted lesions of tertiary syphilis, without a history of extragenital infection or previous eruptions of syphilis, and in whom none of the triad symptoms of hereditary syphilis was present. In the discussion of these cases it was apparent that a difference of opinion existed as to whether these were cases of extragenital infection, or cases of long periods of latency in hereditary syphilis. The question which arose was: Can hereditary syphilis manifest itself for the first time some years after birth by the presence of such late lesions as occur in the acquired form, and with a total absence of the triad symptoms?

That long periods of latency is one of the chief characteristics of acquired syphilis there can be no doubt, as we all have seen cases in which from ten to twenty years have elapsed from the time the disease was acquired to the time the tertiary symptoms appeared.

If long periods of latency may occur in the acquired form of syphilis, why may they not occur in hereditary syphilis? Syphilis is the same whether acquired by the individual himself directly, or transmitted to him by his parents at the time of conception. Such being the case, then we might expect to find long periods of latency in hereditary syphilis, and if long periods of latency do not occur, then this form of the disease differs from ordinary or acquired syphilis.

While it often may be extremely difficult to establish the fact that children, born of syphilitic parents and exhibiting late lesions, may not have had other lesions early in life, still such cases are not infrequently met with. They must, however, be very carefully scrutinized, in order to avoid error. The ease with which one may be deceived in this matter is illustrated by the following cases: I have under observation at the present time several children who presented symptoms of hereditary or congenital syphilis at the time of birth, but who are entirely free from evidence of the disease at the present time. Were these children to be observed at the age of twenty years, and lesions of syphilis be found present, these children never having been informed by their parents or physician that they were born

with the disease would naturally give a negative history, and their cases readily be misconstrued or accepted as cases of acquired syphilis.

In establishing a diagnosis of hereditary syphilis, there are three points, known as the triad of syphilis, which have long been looked upon as of the greatest value. These are, namely, Hutchinson's teeth, interstitial keratitis, and a particular form of deafness.

Let us consider these points in order. Great stress has been laid upon the diagnostic value of the Hutchinsonian teeth, but they in themselves are late manifestations of inherited taint, and can be accepted in no other sense. They are not present in the first or temporary teeth, but in the second or permanent teeth, which do not appear until the fifth to sixth year, and are not always indicative of syphilis when present, as J. C. White¹ has reported a case of a boy who presented the central incisors notched from side to side, with the lateral incisors wanting, in whom the suspicion of syphilis was absolutely excluded. The other teeth were normal. The deformity followed a sudden and severe attack of cervical adenopathy. Again, the characteristic teeth are present in only a minority of those who are the subjects of inherited syphilis, and it is unquestionably true that teeth of perfect development may not infrequently be seen in the mouths of those who have suffered severely from inherited taint.

Interstitial keratitis is, perhaps, the most frequent of Hutchinson's symptoms, and occurs usually between the ages of six and fifteen years; but, unlike the Hutchinson teeth, it may appear as early as the second or third year of life. Fournier claims this symptom may be due to malnutrition, as well as to inherited syphilis, and no differentiation between these two etiological factors can be made in the effects on the cornea.

Labyrinthine, or central deafness, depending possibly upon lesions of the auditory nerves, is most frequently met with in children about the age of puberty, or in adults, and manifests its presence by the following symptoms: It is, as a rule, unilateral in the beginning, but after a shorter or longer period varying from a few weeks to some months the other ear becomes affected, deafness appears suddenly, and advances rapidly; it is not accompanied by pain, or any discharge, although occasionally an otitis media purulenta may be present. The patient complains of noises, dizziness, and sometimes even attacks of vertigo occur. The deafness is usually progressive, and after some weeks may become absolute. It is not improved by antisiphilitic treatment.

While the above-mentioned points are of great

diagnostic value in hereditary syphilis, there are others which, although perhaps not so common, are nevertheless of much significance when present. Among these may be mentioned acute ulcerative destruction of the palate in young persons. This in itself is almost conclusive proof of an inherited taint.

Edmond Fournier² and some other French writers lay great stress on the findings in the fundus of the eye as an aid in the diagnosis of hereditary syphilis. In one case he describes atrophic chorioretinal plaques in both eyes. In another case the remains of an old papillitis was seen. Vascular changes and alterations of pigment, which the oculist, Antonelli, stated could only be the stigmata of hereditary syphilis, were observed in one eye, and in the other there was a rudimentary optic neuritis, a diffuse retinitis of several months' standing, manifesting itself by several foci of exudation in the central region, by a suffusion which was quite extensive, and by multiple separations of the retina in the temporal and upper sections of the eye fundus.

Late hereditary syphilis may affect the skin, appearing as gummata singly or in groups of solid nodules, which are dark red in color, and are most frequently seen on the face or forelegs. These nodules may later break down and ulcerate. On the face they most frequently attack the nose, and when on the legs the anterior surface. The ulcers are sharply defined, and clearly cut with abrupt, uneven edges, and present the usual characteristic appearances of the ulcerating gummata of acquired syphilis. *Unlike early acquired syphilis, we never have any scaly or small papular eruptions.*

Notwithstanding all of these points, it must be admitted that there are patients in whom, in spite of the modern development of diagnosis, the recognition of inherited taint is still a matter of great difficulty, if not an impossibility. We must, however, be prepared to encounter now and then manifestations of inherited syphilis in those who do not show a single corroborative feature.

Hyde³ remarks that not every child with Hutchinsonian teeth, with cranial bosses, with nutcracker skulls, or suffering from a rebellious affection, is the victim of inherited syphilis, and that even the painstaking labors of A. Parrot have not sufficed to obliterate the distinction between syphilis and rickets.

Cases of latent hereditary syphilis are not very numerous in literature.

Jordan⁴ reports the following two cases:

Case 1.—Patient, army officer, twenty-two years old; applied April 23, 1902, for treatment for disease of the knee-joint. He denied all knowledge of venereal disease. About the end of April, 1901, patient first complained of pain in both knee-joints on climbing stairs. This without apparent cause. In June, pain disappeared from the right knee-joint, while the pain in the left became more intense. Early in July the army surgeon noticed a swelling of the knee-

joint, and induced the officer to ask for a furlough. No improvement was noted after treatment with baths and compressed applications, consequently the patient entered a surgical clinic in September, 1901. Effusion in the left knee-joint was treated with iodine, compression and hot air. The swelling decreased in amount, but did not entirely disappear. Palpation of the joint was painful, and an incision was made above the patella, under the supposition that the case was one of tuberculosis. Drainage of the joint with iodoform gauze. Examination of the urine was negative as to gonococci. The wound healed, the patient was discharged, in November, wearing a plaster-of-Paris dressing or cast. The end of March following, the swelling in the joint, which had never entirely ceased, became increased. Examination of the joints, April 1, 1902, when first seen by Jordan, showed the left knee-joint remarkably swollen and tender, and some slight swelling in the right knee. Both joints were freely movable. A thorough examination of the young man did not reveal any signs of past tuberculosis or lues. Treatment instituted consisted of complete rest in bed, baths and compression bandages. A week later, notwithstanding this treatment, the swelling increased in the right knee-joint, and closer observation gave the impression that the cause of this swelling was syphilis. Jordan made this diagnosis by exclusion. Hydrops could not be accounted for by its usual etiological factor. Trauma was excluded. Acute articular rheumatism was absent. No signs of gonorrhea were present, and also no tuberculosis. The negative results of the incision, combined with all the preceding features, brought him to the conclusion that this was a case of *lues*. The slow bilateral effusion in the knees, the slight pain, the insignificant functional disturbance, the changing of the symptoms, and the failure of all treatment, were all facts in favor of syphilis. As acquired syphilis was excluded with certainty, it could only be a case of late hereditary syphilis. The favorable result following specific treatment justified this diagnosis.

The family history of the patient disclosed the following facts: The patient's father was a physician, and became infected with syphilis on the hand while attending an accouchement, in 1872. He married in 1877. His wife, who was still alive, stated that upon several occasions he had had eruptions on the face, and took iodide of potassium.

Maternal History.—First pregnancy in 1878. Premature birth. Child died a few hours after birth. Second pregnancy, 1879. Miscarried at five months. Child dead. Third pregnancy, 1880. (Jordan's patient.) A normal, healthy boy. No affections. Fourth pregnancy, 1883. Aborted at two months. Patient's mother, in 1886, had a stroke of apoplexy, but completely recovered. In 1887 she had an ulcer of the soft palate, which rapidly healed under anti-syphilitic treatment. The patient's father spent nine

months in an asylum, in 1882, for some brain trouble. Marked improvement. In 1883, committed suicide.

Diagnosis in the patient's case was latent hereditary syphilis. **Treatment**.—Sodium and potassium iodide.

Result.—Complete recovery. In November, patient resumed his duties as an army officer. This case is considered a typical one of latent hereditary syphilis, with a single localization.

Case II.—Was one of bilateral exudative gonitis, combined with keratitis parenchymatosa, in which complete recovery followed antisyphilitic treatment. The history of the case is as follows: Patient, boy, five years of age, came to the clinic in July, 1895, suffering from a bilateral inflammation of the knee-joints; the knees were swollen, and the ends of the bones considerably thickened. There was also a keratitis parenchymatosa. December 15, 1895, after a course of treatment, the patient was discharged. In January, 1901, trouble appeared in the eyes. In the spring of 1903, the patient, who was now twelve years old, was again examined, and found healthy. On the left cornea some cloudiness, due to scar, was found. This lessened the field of vision considerably. The joints were found to be normal. With the exception of the scar on the cornea, no evidence of syphilis could be detected.

Family History.—Father had an ulcer on the penis in 1881. Married in 1886, or five years later, and infected his wife in about a month. Symptoms in mother were roseola, condyloma of labia, and mucous patches in throat. By October 28, 1886, all symptoms disappeared under treatment. In 1887, gave birth to child, which died two days after birth. In 1888 another miscarriage at six months; fetus dead. In 1889 again miscarried at six months; fetus dead. In 1890, the fifth labor was normal, and a boy, the herein-mentioned patient, was born. The next, or sixth, labor was normal, and the child, which at this time was nine years old, was anemic and suffers from headaches. The seventh pregnancy: Premature birth, still-born child. In 1895, eighth pregnancy, normal delivery at term; child at this time was seven years old, and healthy. The ninth pregnancy was again premature; fetus dead. The last pregnancy occurred in 1898; labor normal, and child healthy. This case substantiates Fournier's observation that in a syphilitic marriage the birth of a healthy child does not warrant that the children which may follow will be healthy; but, rather, that a syphilitic child follows a healthy one. In this case the period of latency was five years.

Hunicken (Brunic).⁵ Case of syphilis hereditaria tarda. The mother of the patient, who had always been healthy, was infected by her husband in the second month of her pregnancy. The corroborative symptoms of the mother's syphilitic infection were condyloma of the great labia and anus; roseola; angina; and periostitic headache. The symptoms all disappeared after six months

of antisyphilitic treatment (inunctions). It was expected the mother would miscarry. On the contrary, however, labor occurred at term, and a healthy boy was born. He remained healthy, with no evidence of syphilis; learned to walk when two years old; was vaccinated at age of three years. At nine years old he complained of pain in the knee on walking. This was followed by swelling of both knee-joints. Diagnosed simple synovitis. Was treated with ice, compression and rest for three weeks, with no improvement. At this time both tibiae were discovered to be highly sensitive to the touch. The diagnosis was changed to latent hereditary syphilis, and the trouble, after four weeks' treatment by inunctions and potassium iodide, entirely disappeared.

Barthelemy.⁶ Case.—A man contracted syphilis and was treated by Ricord for eighteen months, at the end of which time he married. For twenty-five years following he had no manifestations of syphilis. His wife bore him five children, all at term, except the last, when labor occurred at eight months. First child was treated by Millard for submaxillary ulcerative lesions, which were diagnosed scrofulotuberculous lesions. When Barthelemy saw this patient he took these lesions to be local bacillary lesions. She had become a woman, twenty-five years of age, and had given birth to a healthy child one year previously.

Second child, a son, when twenty-three years old, was treated for two years for acquired syphilis. Her third child, at this time a girl of twenty years, is the subject of this case. She has never had any stigma of syphilis either on her body, teeth, eyes or ears. A month previously a bulla, the size of a fifty-cent piece, was noticed. This was thought to have been caused by a burn or stinging of an insect. Burning and itching sensation severe. Became more intense and deeper from day to day, until a large granulous wound was present, which showed all the characteristics of a tertiary ulcerocircinated syphilide and a nummular gumma of the skin, which diagnosis Fournier confirmed, without reserve. The gumma was located on the knee, and appeared twenty years after birth.

Gaucher (E.), Lacapierre and Bernard (H.).⁷ *Latent Hereditary Syphilis, with Dental Dystrophia*. Female, nineteen years old, was brought to the Hospital Saint Antoine, March 14, 1900, in a state of semi-coma. Examination revealed a right hemiplegia, with aphasia. Patient had given birth to a child a month previously. Diagnosis made at the time was puerperal infection and metritis; bilateral phlebitis of the thighs; pulmonary embolism, which accounted for the pain in the thorax. To explain the hemiplegia and aphasia it was supposed to have been caused by a fibrinous coagulation in the heart, which is slightly dilated. Patient positively denies any venereal infection, and of her father's history nothing could be learned. The patient's child died a few days after birth, showing no trace

whatsoever of syphilis. The appearance of the teeth attracted attention, and suggested the possibility of syphilis, which suggestion was followed out, and the patient placed on daily inunctions, and four grams of kali iod. internally. Marked improvement followed immediately, and the patient was discharged from the hospital May 24, 1900. One year later (April 21, 1901) patient returned to the hospital for consultation. There were present tertiary cutaneous gummata located on the legs. The diagnosis was latent hereditary syphilis. Dental dystrophia revealed the presence of hereditary syphilis at twenty years of age. No previous accident would suggest the existence of syphilis, but a few months later the appearance of gummata on the legs and the effects of treatment confirmed the diagnosis.

Lannelongue⁸ mentions a case of a young man, thirty-four years old, who had a typical gummatous ulcer on one of his legs, the nature of which had not been suspected until the patient consulted Lannelongue, who diagnosed latent syphilis of hereditary origin. He mentions also three more cases of latent hereditary syphilis, in young girls who were about to be married, and who never knew that they were thus afflicted:

Case I.—Young girl, from a syphilitic father. Suffered with a gumma of the leg. *Case II.*—Young girl, twenty-three years old, for past four years affected with a phagedenic serpiginous ulcer of the leg. *Case III.*—Young girl, twenty years old, affected with gumma of the soft palate.

Anthony (H. G.).⁹ Twenty years ago a man acquired syphilis. He married while the roseola was present, and immediately infected his wife. A child was born three years after the marriage. Eleven years ago, when the child was six years old, the author examined the family. The father and mother showed unmistakable evidence of the disease, but the child was free from symptoms of hereditary syphilis. Since this examination the mother, knowing that she herself had had syphilis, has always been very solicitous regarding the welfare of her daughter, and watched for skin eruptions or other possible symptoms of the disease, and up to this time she had never observed anything of a suspicious nature. In October, 1903, she brought her daughter to Anthony again. She was seventeen years old, and was found to have a circinate, ulcerating, tubercular syphilide, situated on the anterior surface of the chest. There was nothing in the history of the case which would in any way suggest a possible extragenital infection, and genital infection could be excluded as thoroughly as it ever can be. Born of a syphilitic mother, who was known to be syphilitic at the time of conception, there is every reason to suppose that this is a case of hereditary syphilis, in which no appreciable evidence of the disease was present up to the seventeenth year of life.

L. Duncan Bulkley¹⁰ reports the following case: Mrs. H., aged twenty-four years, fairly well developed. When first seen there were the

active elements of a tubercular eruption upon the forehead, right ear, arms, knee and back. On the left arm there were two patches of a dull red color, about an inch and a half in diameter, composed of curved lines, or rows of tubercles, which have advanced, leaving a scar tissue behind, which later surrounded the elbow. The right arm was quite similarly affected. On the shoulders was an eruption, dark red, or copper-colored, with some crusting in places, composed of irregular patches of tubercles, and cicatricial tissue by the side of the more recent disease. The eruption extended down the back six or eight inches. Near the left knee there was a patch of the same form of lesion, and a few scattered tubercles on the upper lip. All portions of the eruption presented the same features, composed of tubercles of a dark-red or coppery color, elevated from one to two lines above the surface, either touching each other, or separated by an erythematous redness. The cicatrices are all alike; supple, mostly white. The more recent ones stained, and slightly depressed.

In the middle of the forehead there was a depression in the bone, pyramidal in shape, the apex resting at the bridge of the nose, and being about two inches wide at the base. Of the origin of this she could give no exact account. It had taken place slowly, beginning, she thought, at about sixteen years of age. There had never been any externally discharging ulceration there. When five years old she had a deep sore near the ankle, which lasted four or five months, and which left a scar. Two years afterward, when she was seven years of age, the present eruption first made its appearance, and has continued since, a period of fourteen years. She had been under medical treatment off and on, but never with any great success. Her family history was not as clear as could be wished. She thought her father was healthy. A sister, thirty years of age, she said, had the same eruption; and her sister's children were also affected. She herself had been married seven years, and had had four children, two of which are dead. This patient remained for a time under antisyphilitic treatment, and improved nicely, but disappeared before sufficient time had elapsed to accomplish a cure, so the ultimate results of treatment cannot be stated.

The two cases reported by Willis S. Anderson¹¹ contain several points of interest. The histories are as follows: *Case I.*—M. B., a girl, aged sixteen years. *Family History:* Mother apparently healthy, with no history of syphilis. Father not seen. Mother has had nine pregnancies. The first and second children were boys, who are alive and healthy; the third and fourth were premature, at eight months; bodies decomposed. The fifth was the present patient. The sixth, seventh and eighth are alive and healthy. The ninth died of pneumonia when nine months old. *Present History of Patient:* General health has been fair. Eighteen months pre-

viously she had pain in her legs for a number of weeks. Has had enlarged glands in the neck for years. About two months before coming to the clinic, she noticed a pea-like swelling at the mucocutaneous junction on the left side of the septal cartilage of the nose, which she thought was a cold sore. This increased in size, spreading to the upper lip, and into the nose, especially attacking the septum. There were no pain or constitutional symptoms. The examination of the nose revealed an extensive ulceration of the whole cartilaginous septum, including the columna, and of the upper lip. The ulcerated area was covered with thick crusts, and there was a foul, irritating discharge from the nose. The whole of the septal cartilage was nearly ready to slough out. The next time the patient was seen the entire cartilaginous septum, including the columna, was removed. The parts were kept clean and potassium iodide given internally. The condition improved and the ulceration ceased.

Case II.—M. O., a girl, aged fourteen years. *Family History:* No history of parental syphilis could be obtained. Mother always healthy; has had four children. Three alive and well. One died, aged seven months, of pneumonia. No miscarriages. Father is in excellent health, and denies ever having had syphilis. *Personal History:* Patient, when one year old, fell and struck on her nose, but no permanent injury resulted. Her general health has always been good, and nasal breathing free. Six months before coming under observation she commenced to have obstruction to breathing through the right side of her nose. No cause could be discovered, unless possibly it was the result of boxing with her brother. The obstruction gradually increased, but was unaccompanied by pain or constitutional symptoms. She was brought for treatment, because of the obstruction, commencing deformity of the nose, and enlargement of the lymphatic glands just below the angle of the jaw on the right side. Examination revealed a red, globular tumor, of about the size of a pea, attached to the right side of the septal cartilage, well forward. Just behind the anterior growth could be seen another globular tumor filling the nasal passage. There was bulging of the nose exteriorly, corresponding to the right ethmoid cells. As the nasopharynx was filled with the growth, it was evident that the tumor filled the whole nasal passage. There was marked swelling of the glands of the right side of the neck. The tumor in the nose was fairly firm in consistence, not painful, and did not bleed readily when touched. The glandular mass in the neck was not accompanied by any pain or tenderness. No ulcerations was observed in the nose, and there was only a moderate acrid discharge. The growth in the nasopharynx had an angry appearance, and was covered with thick, tenacious mucus. The general health of the patient was little impaired. Her symptoms could all be accounted for by the nasal obstruction, and the pressure of the growth.

The diagnosis of late hereditary syphilis was made by exclusion, and the patient placed on kali iodide internally, and mercurial inunctions, with the result that the growth gradually melted away, and the enlarged glands disappeared.

At the present time I have under my care a girl, sixteen years old. She is one of seven children, all healthy and robust. Patient's menstruation first appeared when she was a little over fifteen years of age. About this time patient suffered intensely from pains in the legs and nocturnal headaches. On the right foreleg were noticed elevated red spots, as the patient describes them, varying in size from that of a split pea to almost, if not quite, the size of a twenty-five-cent piece. Within a month the left foreleg presented a similar condition to that on the right leg. When the patient first came under my observation she presented typical ulcerating gummata on both legs, without any other evidence of hereditary taint, and an absolutely negative history as to any skin eruption or sickness of any character in the earlier years of her life. The mother of the patient is a subject of ichthyosis, and states that she had had two miscarriages, occurring without apparent cause; the first at between five and six months, and the second at between six and seven months. On the right hip of the mother examination reveals a scar which resembles that following a syphilitic ulceration, although she denies all syphilitic history. The patient's father refused to be examined or interviewed. Under antisyphilitic treatment our patient made a prompt recovery.

Fournier¹² says that latent hereditary syphilis may manifest itself at any age, from young adult up to old age, less frequently in old age, at fifty-one, even at sixty years, and older.

We have grown away from the teachings of Kaposi, Baresprung, Lang and others, who state that cases of latent hereditary syphilis are not authentic. They say that if this disease be congenital or hereditary, there must have been infantile manifestations. We accept as facts the teachings of Fournier, Neuman, Sigmund, Hebra and others, that these cases are authentic, and do occur.

REFERENCES.

- 1 Archives of Dermatology, April, 1878.
- 2 Annales de Derm. et Syph., 1904, p. 152.
- 3 Medical News, Dec. 14, 1897, p. 727.
- 4 Münch. med. Woch., 1903, 50, p. 1324.
- 5 Deutsche med. Woch., 1896, Vol. 22, p. 46.
- 6 An. de Dermat. et de Syphil., 1899, 3 Ser., Vol. 10, p. 262.
- 7 An. de Dermatol. et de Syphil., 1901, 4 Ser., Vol. 2, pp. 437-46.
- 8 Bulletin de l'Acad. de Méd., Paris, 1903, 3 Ser., Vol. 49, p. 532.
- 9 Illinois Medical Journal, November, 1903, p. 368.
- 10 Archives of Dermatology, January, 1878, p. 70.
- 11 New York Medical Journal, July 26, 1902.
- 12 Bulletin de l'Acad. de Méd., Paris, 1903, 3 Ser., Vol. 49, p. 532.

Correction.—Dr. H. F. Stoll has asked us to correct an error which occurred in a recent article by him on "The Diagnosis and Differential Diagnosis of Incipient Pulmonary Tuberculosis." The corpulence is obtained by dividing the weight in pounds by the height in feet: not the height in inches, as was stated in the article.

A PRELIMINARY REPORT UPON THE SPIROCHÆTA OF SYPHILIS.

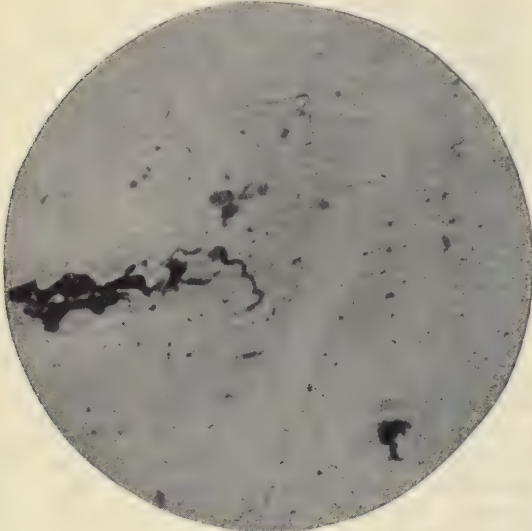
BY ANTONIO FANONI, M.D.,

OF NEW YORK;

VISITING SURGEON TO THE ITALIAN HOSPITAL OF THE BOROUGH OF MANHATTAN; ASSISTANT, DEPARTMENTS OF GYNECOLOGY AND OF GENITO-URINARY SURGERY AT THE POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, ETC.

DURING the past two months I have examined a number of syphilitic subjects for the purpose of

Fig. 1.



Spirochæta pallida,
x 1000.

demonstrating and studying the morphologic features and staining properties of the *Spirochæta*, recently described by Schaudinn and Hoffmann¹ and other European investigators, as present in the various lesions of primary and secondary syphilis.

Owing to its extreme rarity the detection of this micro-organism is attended by the greatest difficulty and requires painstaking microscopic search of a number of specimens. A very decided obstacle to examination is the embarrassment encountered in staining the organism with sufficient distinctness to be easily recognized. After many unsuccessful attempts with different solutions of Giemsa's stain, made according to the many formulæ recommended, I finally succeeded in having made for me by E. Leitz and Eimer & Amend, of this city, a solution which stains the organism distinctly and sharply in a few minutes instead of twenty-four hours as recommended for the Giemsa stain.

The material for this work was obtained by me in twelve cases of primary and secondary syphilis, and included material taken from chancres, inguinal glands, condylomata, papules and mucous patches. Scrapings were made from the chancres with a sterile scalpel. From the inguinal glands I obtained the juice and some debris of tissue by puncturing them with a large

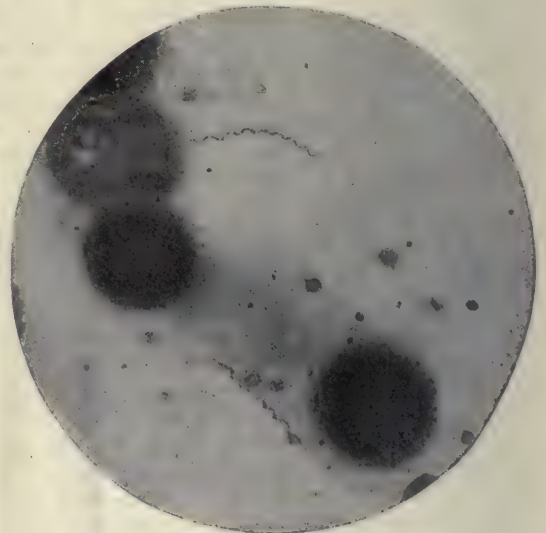
hypodermic needle, and moving the needle about, so as to break up the tissue. The condylomas were clipped off and squeezed to obtain their contents, while the papules were incised through their centers and scraped with a Volkman spoon.

Smears were made in the usual way with this material, spreading them as thinly as possible, and stained by one of three methods: Giemsa's original method, as used by Schaudinn and Hoffmann, Oppenheim and Sachs' method and De Marino's method.

The following is Giemsa's method: Fix in absolute alcohol for half an hour. Then immerse for twenty-four hours in the following solution: (1) Twelve parts of a solution of eosin (2.5 c.c. of one per cent. eosin solution in 500 c.c. of water). (2) Three parts of azur I (one part dissolved in 1,000 parts of water). (3) Three parts of azur II (solution of 0.8 parts per 1,000 of water). Wash in water.

The method of Oppenheim and Sachs is as follows: The slides, being first dried in the air, are placed in the following solution without fixation: One hundred c.c. of five per cent. carbolic acid solution in water; 10 c.c. of a concentrated alcoholic solution of gentian violet. The slide is dried slowly by very gently heating it over the Bunsen flame, until it begins to steam. Wash in water and dry with filter paper. The *Spirochæta* will appear stained very distinctly blue, and appear larger than those stained by Giemsa's stain, I think because the alcohol in the latter

Fig. 2.



Spirochæta pallida,
x 1400.

dehydrates and shrinks the germ. This process has the advantage of staining in a few minutes and is probably the best for clinical purposes.

De Marino's method consists in staining the slide without fixation with one c.c. of Marino's blue (consisting of 0.10 c.c. of azur blue and 50 c.c. methyl alcohol). Allow this to remain for ten minutes and without washing on the slide

¹ Schaudinn and Hoffmann, Arbeiten aus dem kaiserlichen Gesundheitsamte, Vol. xxii, 1905.

one c.c. of a watery solution of eosin 1:50. After two minutes, wash and dry. The *Spirochæta pallida* will be stained a faint orange-pink. On account of the rapidity of this method, it is also preferable to Giemsa's. The stain is not so distinct, however, as Oppenheim and Sachs'. On account of the tenuity of the object I used an oil immersion $\frac{1}{12}$ and $\frac{1}{16}$ Leitz.

The accompanying illustrations show some of my early results with these methods. Owing to the difficulty of finding the *Spirochæta* in smears,

Fig. 3.



Spirochæta pallida.
x 1000.

I have as yet finished the examination of but five of the twelve cases, and in all five I succeeded in finding the germ. The remaining cases are now in process of examination, and the results will be reported in a later paper in which my work will be detailed in full.

My impression from the examinations thus far concluded is, that while the *Spirochæta pallida* is more or less constantly present in syphilitic lesions, yet it requires patient and protracted search of the specimens to find it, and then usually in isolated form.

119 West Eleventh Street.

SANATORIUM PROVISION WITH INDUSTRIAL OPPORTUNITIES FOR INDIGENT CONSUMPTIVES.¹

BY HERBERT MAXON KING, M.D.,

AND

HENRY B. NEAGLE, M.D.,

LOOMIS SANATORIUM, LIBERTY, N. Y.

THE narrow limitations in the way of remunerative employment which must necessarily be imposed upon the consumptive whose disease is not thoroughly arrested, make the problem of his self-maintenance during treatment a difficult—not to say serious—one.

Exertion, either physical or mental, if not

wholly proscribed, must be permitted only with the greatest degree of moderation, and under most careful supervision, if harm to the patient is to be avoided. The disastrous results of over-exertion or emotional excitement on the part of tuberculous invalids with unarrested lesions, are familiar to every physician.

Thus the list of possible occupations open to the consumptive during the active stage of his disease is a very small one, and the institution, therefore, which has for its object primarily the arrest and cure of the disease, and secondarily the self-support, in whole or in part, of the patient during treatment, is assuming at the start a rather paradoxical rôle. That the difficulties in the case are real and often insurmountable, is evidenced by the failure of several institutions of this character to survive, although in some instances ample influence and financial support were not lacking. Our inquiries among those which are still in operation, in America at least, have not resulted in reassuring reports, as will appear presently.

On the other hand, that the patient whose disease is quiescent or partially under arrest, may under certain conditions (which pertain chiefly to climate and intelligent supervision) safely undertake light occupation is undoubtedly true.

It is, indeed, probable that among the chief reasons why these institutions have not so far met with greater success are: *First*.—That the industrial limitations to which a tuberculous patient is necessarily subject have not been fully recognized by the promoters, and *second*, that no adequate provision has been made for the preliminary care and education of the patients during the active stage of the disease.

Most of the closed sanatoria now in existence were designed solely for the curative treatment of tuberculosis, and even those purposing to reach the working classes pretended to little more than the hygienic education of the patients with the arrest of their disease.

It is difficult to alter the original purposes of such an institution at a period more or less remote from that of its establishment, except by adding to it new and separate units, and, in most instances, this has been impracticable owing to the lack of space and various other limitations. In fact, it has been almost universally true that the problem of finding ways and means to maintain the original design of such sanatoria has been quite sufficient for the trustees and managers, without encumbering themselves with expensive experimental innovations. When industrial features have been introduced into previously existing sanatoria, therefore, it has been, as a rule, in a dilettante sort of way, and usually without a well-thought-out plan and sufficient funds to insure success.

It is so easy to speculate on the results which could be obtained, theoretically at least, in the ideal sanatorium with provision for industrial features, that the wonder of it is the public press,

¹ Prepared for the symposium on Sanatorium Treatment of Consumption at the first annual meeting of the National Association for the Study and Prevention of Tuberculosis, May 19, 1905.

ever seeking sensational matter along the lines of tuberculosis, has not long ago exploited the idea.

Such an institution, let us say, should consist of three main divisions—infirmiry, pavilion and industrial department, the first two forming complete units each, the last divided into as many distinct units as there are branches of industries undertaken. For instance, agriculture in its various branches; stock-raising, including poultry farming, bee culture, etc.; certain manufacturing industries, and the administration of the institution itself in its various phases.

The new candidate for admission to such a sanatorium is, of course, first taken into the infirmiry. Here he is kept during the active stage of his disease (or until he is found to be an unsuitable case and discharged) and is given that medical supervision, care, nursing and instruction so essential to a successful result. When his disease is quiescent, his temperature and weight normal, and his condition otherwise permits, he is transferred to a pavilion where, under close observation, suitable exercise tests are made. These tests determine his physical qualifications for work of any kind, as well as to which branch of the several industries, at the command of the sanatorium, he is best adapted by his individual peculiarities, physical and mental. As his disease is arrested, his exercise is directed into those industries for which he seems best fitted, and again he is transferred to one or another of the units of the industrial department. Finally, he is sent back into the world with restored health and a new vocation to resume his place among breadwinners.

Some such plan has, no doubt, occurred to the mind of every physician and humanitarian who has made himself familiar with the difficult problems, medical and sociological, which tuberculosis suggests. Such a plan, however, to present much prospect of success, must possess greater resources than are usually available for innovations of this character.

The original cost of the plant would exceed what can ordinarily be obtained with difficulty, for old and tried philanthropies, and for several years at least, the cost of administration, which could not but reach somewhat startling figures, would have to be provided for elsewhere than from the earnings of such an institution. The plan would, after all, appear in the light of an experiment with at least a considerable chance of failure, and thus the difficulties in securing the necessary funds to begin with, must be apparent.

Only a few days ago there appeared in the columns of one of the New York dailies an account of a proposed plan to establish on a huge scale what might be termed an industrial community for tuberculous invalids, near Las Vegas, in New Mexico. According to this report, the proposed plan is purely philanthropic in object, and, to start with, has an equipment in lands and

buildings so vast that, taken together with the colossal extent of the work proposed and the number of patients which it is expected to care for (from five to twenty-five thousand), those of us who have experienced the vicissitudes and difficulties incident to more modest establishments may be pardoned for entertaining some skepticism as to its eventual success. Nevertheless it is conceivable that even such an immense institution, if properly organized into compact and scientifically administered units, and the whole wisely and judiciously governed by a board of disinterested and competently trained officers, may open a new and brilliant chapter in phthisiotherapeutics, especially as applied to the consumptive poor.

With the idea of ascertaining the degree of success attained thus far in attempting to provide employment for consumptives, a number of circular letters was sent to the institutions in this country and Canada known to be thus engaged. The following questions were asked:

(1) Number of cases furnished with employment? (2) Character of employment? (3) Number of cases reporting or observed afterward? (4) General relative condition of such patients as regards weight, fever, cough, expectoration, etc., in comparison with previous condition? (5) List of suitable occupations? (6) General information as to the practicability and economy of the plan?

The replies were characterized principally by their uniformity, and while all stated that the work was as yet in an incipient stage, there was a rather disheartening unanimity in the admission of failures thus far.

Considering the subject purely from the standpoint of economy, as one physician of very considerable experience tersely puts it, "the slight saving in service scarcely compensates for the extra trouble of supervising the very irregular work obtained." On the other hand, there is a very general admission of the fact that some employment is, in many cases, not only possible, but even advisable.

The difficulty of obtaining accurate statistics is dependent largely upon the fact that the work is, as yet, in its most experimental stage, but it is apparent that individual variation renders judgment as to capacity for work as fallacious as it is in the whole matter of prognosis. Institutions established with the idea of permitting patients to support themselves and their families by their own exertions, while enjoying the benefits of open-air treatment under excellent climatic conditions, however well managed and however generously endowed, have proven failures one and all. On the other hand, under the most unhygienic conditions and in the face of almost insurmountable difficulties, most gratifying results have been attained in individual cases by workers in the free clinics of our larger cities.

Much of the discrepancy in the results of the work accomplished by physicians in charge of

sanatoria and those in private practice, is due, doubtless, to the fact that the standards of judgment must necessarily vary in a marked degree. On the one hand, we have the most careful supervision actuated by the desire to obtain statistical results comparable to those of competitors; on the other, actual necessity compelling too short a time limit to the treatment recommended as most efficacious.

In striking contrast to the discouraging reports of the philanthropic institutions so far in the field, is the analysis of the histories of patients admitted to the Loomis Sanatorium. Of fifty cases taken at random, and consisting of both early and advanced cases, the average duration of the disease at the time of admission was over three years, and during these three years 70 per cent. had been self-supporting. Still more striking is the fact that, in the case of twenty-five advanced cases, with fibrosis predominating, the average duration was five years, and during these five years 68 per cent. had been self-supporting.

With a view of determining the relative merits of complete rest and gradually increasing exercise in quiescent cases, some experiments were carried out at the Loomis Sanatorium Annex during the autumn of 1902. The results were interesting as bearing upon the present question. "Twenty patients, all with quiescent lesions, without rise in temperature, and up to, or a little above, normal weight, were selected and divided into two classes of ten patients each, known as Class A and Class B, respectively. In Class A there were five men and five women. . . . In Class B there were six men and four women. The experiment consisted in placing Class A on greatly increased exercise (hill climbing) for a period of two weeks, during which time Class B was upon a regime of enforced rest. The following two weeks the conditions were exactly reversed, Class B taking the increased exercise and Class A the enforced rest. Observations were made of pulse and temperature for one week prior to the test, during the test, and for a week following the test. Changes in weight were recorded under the various conditions, as were the effects produced upon cough and expectoration."

Passing over the details of the experimental test, the following tables show the summary of results in the two classes:

From the latter it will be seen that the average maximum weekly temperature actually fell during and following the test in both classes, while even the pulse was not materially affected. With the weight there was a small balance in favor of the period of enforced rest in both classes, but it must be remembered in this connection that most of these patients were above normal weight before the experiment was undertaken. In Class A, during the period of increased exercise, there was a total gain in weight of 14 $\frac{7}{8}$ pounds and a total loss of 2 $\frac{1}{4}$ pounds, while during the subsequent period of enforced rest there was a total

Summary—Class A.		Exercise T. P.	Rest T. P.
Weekly average temperature and pulse prior to tests.....		98.5 93	98.4 86
Weekly average temperature and pulse during tests.....		98.3 96	98.5 96
Weekly average temperature and pulse after tests.....		98.3 89	98.6 95
		Period of increased exercise. 14 7/18	Period of enforced rest. 16 1/2
Total number of pounds gain in weight..		14 7/18	16 1/2
Total number of pounds loss in weight....		2 1/4	3/4
Cough	Increased	—	—
	Absent	1	2
	Decreased	6	5
	Stationary	4	1
Expectoration	Increased	—	—
	Stationary	2	3
	Decreased	6	3
	Absent	3	2

Summary—Class B.		Rest T. P.	Exercise T. P.
Weekly average temperature and pulse prior to tests.....		99.3 100	98.4 96
Weekly average temperature and pulse during tests.....		98.3 100	98.6 100
Weekly average temperature and pulse after tests.....		98.4 96	98.6 102
		Period of enforced Rest. 26	Period of increased exercise. 13 3/8
Total number of pounds gain in weight...		26	13 3/8
Total number of pounds loss in weight....		1	2
Cough	Increased	2	3
	Stationary	4	3
	Decreased	4	1
	Absent	—	4
Expectoration	Increased	3	4
	Stationary	4	2
	Decreased	2	3
	Absent	1	1

gain of 16 $\frac{1}{2}$ pounds and a loss of $\frac{1}{2}$ pound. In Class B, during the period of exercise, there was a total gain of 13 $\frac{3}{8}$ pounds and a loss of 2 pounds, whereas during the antecedent period of rest there was a total gain of 26 pounds and a loss of 1 pound. The effect of the experiment upon the symptoms may be gathered from the tables. It is worthy of remark, however, that in every instance the patients felt better during the period of increased exercise.

Following these exercise experiments in the autumn of 1902, an attempt was made at the Annex of the Loomis Sanatorium to organize a working corps of quiescent cases among the men.

The work available at the time consisted of certain kinds of farm labor: caring for live stock, and improving the walks and wagon roads (chopping wood was attempted, but abandoned because of its bad effects upon patients). Remuneration was offered sufficient to enable a patient nearly to meet his expenses by working four hours per day, divided into from two to four shifts. Fifteen men were selected as physically able, and permitted to work from one to six hours per day, each. The novelty waned, however, and, within the month, there was scarcely an applicant, although no harmful effects had followed in any case. The plan had to be abandoned for lack of inclination on the part of the patients.

This spring a slightly different plan is being tried as an experiment. A moderately large garden plot is turned over to one of the patients of exceptional intelligence and some executive ability, who is to organize his working corps among the patients on a cooperative basis. All expense is to be borne by these patients, who, of course, will furnish among themselves the necessary labor, all to be under close medical surveillance. The entire product of the garden, the sanatorium agrees to purchase at market prices. So far the interest and enthusiasm in this plan are apparently more substantial than was the case under former conditions, possibly because of the element of chance in the result, or, perhaps, because of the independent phase which the scheme presents.

It is apparent from the experimental work quoted that moderate exercise, carefully supervised, may prove not only permissible but beneficial in certain cases, and this is substantiated by reports from institutions having some years of actual experience in providing such exercise. Moreover, consumptives not only can, but actually do remain, productive agents for many years after the appearance of the disease. It is equally true, however, that every attempt thus far to organize even moderately large numbers of phthisical patients into self-supporting communities has been uniformly unsuccessful.

The obvious conclusions drawn from what we have learned in the course of our own experience, and as a result of our inquiries, are: *First*.—A sanatorium should be upon a sound financial basis, independent of its earning capacity, before entering industrial fields. It cannot safely rely upon financial returns from its industrial features, since the latter are fully as apt to increase as to decrease the expense of administration; *second*, if industrial features are to be introduced, as wide a range of occupations as possible should be at command, in order to meet individual requirements in both sexes, and suitable provision should be made for permitting very light work and short hours to start with in all cases.

It is scarcely necessary to add that no patient should be permitted to do work of any kind until sufficient time has elapsed after his admission to establish his physical ability. Medical supervision should be unremitting throughout his sanatorium residence, and allowance in time limit of residence should be made for the relapses which will inevitably occur wherever any great number of consumptives is employed.

Decatur Medical Society.—The September meeting of this Society was in honor of Dr. William Osler. It was held Tuesday evening, September 26, the following program being given: "William Osler: His Life, Work and Influence," J. N. Randall; "Chloroforming Sexagenarii," W. J. Chenoweth; "Some Selections from Osler," H. C. Jones.

THE ULTIMATE RESULTS AFTER THE BLOODLESS REPOSITION OF THE CONGENITAL HIP-JOINT DISLOCATION.¹

BY FREDERICK MUELLER, M.D.,

OF CHICAGO;

ORTHOPEDIC SURGEON, ST. LUKE'S HOSPITAL; PROFESSOR OF ORTHOPEDIC SURGERY, MILWAUKEE MEDICAL COLLEGE, MILWAUKEE, WIS.

AMONG the deformities congenital dislocation of the hip-joint has aroused a great interest during recent years, not only on account of the fact that methods have been developed which pretend to accomplish a complete cure of this deformity, but also on account of the divergent opinions of the different surgeons about the efficiency of these methods.

It is mainly upon the Lorenz method of reducing the congenitally dislocated hips that interest and discussion has been concentrated. Since enough time has elapsed since Lorenz' visit to this country, we are at the present time able to discuss the results of patients originally operated upon by Lorenz. But before going into these details I wish to make a few remarks upon the classification of the primary and secondary results of the operation.

We know, that the pathological anatomical qualities of the two parts which form the joint—the socket and the upper end of the femur—are subjected to such variations, that we need not wonder if among one hundred dislocated hip-joints scarcely two of them correspond exactly. Development of the socket and shape of the same, development of the femur head and its shape, the angle of inclination of the neck, the length of same, the angle of twisting of the neck against the frontal axis of the femur condyles, the length of the capsule, its insertion, the hour-glass-shaped contraction of the same and the entrance to the pocket-shaped recessus of the socket; all these conditions are apt to cause a variation in the pathological anatomical picture in its minute details. In consequence of this we are able to reconstruct an uninterrupted series of cases, beginning with those which correspond in their anatomical qualities to traumatic dislocations, and ending with those which present the highest degree of all the graver anatomical changes.

Briefly speaking, we find the following anatomical changes in the socket, capsule and femur head: The socket is shallow; this shallowness is partly caused by the presence of more or less resistant fibrous connective tissues, which may sometimes show some signs of fatty degenerations, and which fills up the preformed socket. The thickness of the bottom of the socket which in normal cases is formed by the Y-shaped cartilage alone is therefore in all cases of a congenitally dislocated hip considerably increased. The rim of the socket, on the other hand, is only slightly developed. This fact may be due to the more or less conspicuous circumstance that the socket is filled out, which has been alluded to above; but in numerous cases there is a real de-

¹ With a report of 33 cases operated upon by A. Lorenz in 1902.

fective development of the rim. In such cases the posterior rim is always the best developed part, whereas the anterior and superior rim may be wanting altogether.

The head is in a great majority of cases deformed; very often it may be found to be flattened in the shape of a mushroom head, its cartilaginous stratum near to the circumference being turned over. The neck is usually shortened; the angle between the neck and the shaft of the femur is usually decreased. Normally the axis of the neck is twisted against the frontal axis of the condyles of the knee at an angle of about 30 degrees. In cases of congenital hip dislocation this angle may be found either increased or decreased. The decreasing of the angle does not imply any difficulties in applying the Lorenz method. Quite the contrary, however, is true about the increasing of this angle, as will be explained later on.

The capsule covers the head of the dislocated femur more or less tightly. The anterior part of it is braced like a drum skin over the empty socket, by which means a pocket-shaped recessus is formed—the so-called pocket-shaped recessus of the socket. The entrance to this pocket-shaped recessus lies in the superior posterior quadrant of the socket and connects there by means of a small and often narrow hose-shaped passage with the part of the capsule which covers the head.

This narrow passage is described as the hour-glass-shaped contraction of the capsule, or, if its lower part is only considered where it is inserted in the posterior rim of the socket and in the anterior part of the capsule, which is braced over the empty socket, we find it also described as the entrance of the pocket-shaped recessus of the socket.

It is therefore easily understood that the therapy has to be individualized in each case, according to the anatomical conditions, and that the different types must necessarily be treated by different measures with reference to fixation and to the after-treatment.

Favorable anatomical conditions, that is, a general state of the joint which makes it resemble a normal joint, not taking into account, of course, the present dislocation, unfortunately are formed in scarcely more than 10 per cent. That means that in more than 90 per cent. we have to resort to special artifice in order to improve the lacking stability and in order to hold the head securely within the socket.

One of these maneuvers consists of the widening of the anterior wall of the capsule and the placing of the head on the horizontal branch of the pubic bone. By complying with this rule we may always expect good results if underdevelopment and shallowness of the socket is combined with slight anatomical changes of the upper end of the femur; we may say that at least 50 per cent. of all cases may be summed up under this class.

The stretching of the anterior wall of the capsule is a maneuver which has to be executed with

great care, and requires without exception a certain experience. The danger of fracturing the neck or the shaft of the femur is very imminent in case the operator does not know exactly how far to go, or with what force to proceed in order to get the wished-for result.

Statistics which show a rather low number of anatomical results are due in large part to the fact that the operator does not like to avail himself of the very valuable maneuver of stretching the anterior wall of the capsule because of the fear of an accident. This mode of procedure excusable as it might appear at the time of operation, retaliates later on, and must therefore be considered equal to an admission of not fully commanding the method.

This procedure (we may call it the primary reposition) in the majority of instances does not give an anatomical result, as the head can be found in front of the socket, leaning toward the horizontal branch of the pubic bone (pubic position), or in some cases even appearing underneath the skin on the horizontal branch of the pubic bone, sharply protruding like a chestnut (suprapubic position).

It is a mistake to consider such positions as ultimate results of a bloodless reposition, and Lorenz in dealing with them emphasized that the head has to be depressed by flexion, adduction, and inward rotation; a procedure which we may call secondary reposition. Such secondary repositions are distinguished by a very good stability of the head of the femur, which could not be held in the socket at all while performing the primary operation; and give as a rule excellent anatomical results, that means, exact reduction of the head into the socket combined with full motion of the joint.

These statements met with some incredulity, not only in Europe, but here in America, and in one of the publications published about a year ago, Ridlon gave vent to his opinion in this manner. In the meantime I was able to prove by means of an X-ray picture exhibited at the meeting of the American Orthopedic Society, Atlantic City, 1904, that such suprapubic positions can be changed into real anatomical positions.

It remains to consider the forty per cent. of cases which after the Lorenz method do not give anatomical replacements of the head. These cases comprise those in which the twisting of the neck toward the frontal axis of the condyles is very marked.

If the thigh of such a case is held in a normal position the neck is directed directly forward instead of toward the medial line. If we place the thigh, the upper end of which is in such a manner deformed in the so-called primary position of Lorenz, it is evident that the head is not able to emerge through the entrance of the pocket-shaped recessus into the socket, as this entrance is situated in the upper and posterior quadrant of the socket, whereas the neck extends straight from below in an upward direction. The axis of the

pocket-shaped recessus of the capsule and the axis of the neck of the femur run in this way in nearly opposite directions.

The head therefore rests at the entrance of the pocket-shaped recessus of the capsule without being encased by it. These conditions can never give anatomical positions with the primary position after Lorenz, but only so-called subspinal

phasized that a good functional result largely depends on the after-treatment and massage.

Among all muscles, especially the so-called pelvitrochanteric muscles, deserve especial attention—the gluteus medius, minimus and maximus. This requires a good deal of time, and unless the massage is continued for one and a half or two years, we cannot expect a favorable result. In

CASES OPERATED UPON BY DR. A. LORENZ DURING HIS VISIT IN CHICAGO IN 1902. SUBSEQUENT TREATMENT DIRECTED BY DR. F. MUELLER, CHICAGO.
ANATOMICAL REPOSITIONS.

Initials.	Age.	Side.	Date of operation.	Sex.	Gait.	Motion.	Results.
1 C. T.	3½	L.	X/18, 1902.	M.	Good.	Full.	VIII/17, 1903. Removal of the cast; depression of the head of the femur which was found on the horizontal branch of the pubic bone. XII/15, 1903. After-treatment.
2-3 M. B.	4	Bil.	XI/24, 1902.	F.	Normal.	Full.	IV/24, 1903. Removal of the cast. After-treatment.
4-5 L. E.	4	Bil.	X/24, 1902.	F.	Normal.	Full.	VI/24, 1903. Depression of the head like in case 1 on both sides VII/12, 1903. III lost. II/5, 1904. After-treatment.
6 W. M.	4½	L.	X/18, 1902.	F.	Normal.	Full.	IV/24, 1903. After-treatment.
7 B. L.	4¼	L.	X/15, 1902.	F.	Defective.	Contracture in abduction.	V/17, 1903. After-treatment. III/15, 1904. Correction of the position in necrosis.
8 L. T.	4½	L.	X/22, 1902.	F.	Normal.	Full.	VII/6, 1903. After-treatment.
9-10 B. K.	5	Bil.	X/16, 1902.	F.	Satisfactory.	Right joint normal, left joint somewhat rigid.	V/20, 1903. Depression on the left side like in case 1. X/20, 1903. Redressement of the right limb which stood in abduction. XII/20, 1903. After-treatment.
11 A. C.	5	L.	XI/2, 1902.	F.	Normal.	Full.	XII/12, 1903. Depression like in case 1. II/13, 1904. After-treatment.
12 D. A.	5½	L.	X/22, 1902.	F.	Normal.	Full.	Operated upon by J. Ridlon without success when three years old. IV/23, 1903. After-treatment. Died August, 1904, of typhoid fever.
13 A. L.	6	R.	X/10, 1902.	F.	Satisfactory.	Somewhat stiff, but progressing.	Operated upon by J. Ridlon without success when four years' old. IV/16, 1903. After-treatment.
14 W. M.	6½	L.	X/17, 1902.	F.	Normal.	Full.	IV/18, 1903. After-treatment.
15 H. B.	7	L.	X/24, 1902.	F.	Normal.	Full.	Operated upon by J. Ridlon without success when five years old. IV/18, 1903. After-treatment.
16 L. E.	7½	L.	X/13, 1902.	F.	Normal.	Full.	Treated without success by J. Ridlon when five years old. V/29 Depression like in case 1. IX/18. After-treatment.
17 B. P.	7¼	L.	X/16, 1903.	F.	Normal.	Full.	IV/24, 1903. After-treatment.
18 E. L.	8½	L.	X/12, 1902.	F.	Normal.	Full.	V/18, 1903. Depression like in case 1. XII/18. After-treatment.
19 H. R.	8¼	L.	X/22, 1902.	M.	Normal.	Full.	V/19, 1903. After-treatment.
20 C. T.	8½	L.	X/18, 1902.	F.	Satisfactory.	Somewhat stiff, but improving.	I/14, 1904 and II/14, 1905. Redressement of the stiffly abducted leg.
21 K. M.	9½	L.	XII/2, 1902.	F.	Normal.	Full.	VI/8, 1902. After-treatment.

SUBSPINAL POSITIONS.

Initials.	Age.	Side.	Date of operation.	Sex.	Joint.	Motion.	Results.
1 B. L.	3	R.	X/16, 1902.	F.	Good.	Full.	IV/27, 1903. After-treatment.
2 H. T.	3	R.	X/31, 1902.	F.	Good.	Full.	V/5, 1903. After-treatment.
3 M. M.	3	L.	X/17, 1902.	F.	Good.	Full.	V/18, 1903. After-treatment.
4 B. T.	3½	L.	X/17, 1902.	M.	Good.	Full.	V/15, 1903. After-treatment.
5 T. V.	4	L.	XI/22, 1902.	M.	Good.	Full.	IV/25, 1903. After-treatment.
6 C. M.	4	L.	X/16, 1902.	F.	Good.	Full.	IV/18, 1903. After-treatment.
7-8 L. M.	6½	Bil.	XI/22, 1902.	F.	Good.	Full.	Depression of the heart on the left side. VII/10, 1903. XII/14, 1903. After-treatment.
9 C. J.	7	L.	X/18, 1902.	F.	Good.	Full.	IV/29, 1903. After-treatment.
10 C. L.	7	L.	X/19, 1902.	M.	Good.	Full.	IV/23, 1903. II Cast VII/15, 1903. After-treatment.
11 N. E.	5	L.	X/20, 1902.	F.	Good.	Full.	Operated upon V/15, 1904, in order to obtain an anatomical replacement.
12 J. A.	5	L.	X/18, 1902.	F.	Good.	Full.	Operated upon X/26, 1904, in order to obtain an anatomical replacement.

positions. The head leaves the place where it has been placed, wandering in an upward direction, and finds some resistance in the spina anterior superior ossis ilei, underneath which it fixes itself more or less securely. These positions can truly be called anterior superior redislacements. But the term "redislocation" must not prejudice us as far as the functional result is concerned. It must, however, be em-

phasized that a good functional result largely depends on the after-treatment and massage. Among all muscles, especially the so-called pelvitrochanteric muscles, deserve especial attention—the gluteus medius, minimus and maximus. This requires a good deal of time, and unless the massage is continued for one and a half or two years, we cannot expect a favorable result. In

With the subspinal position, of course, always some shortening of the limb is connected; we

have to remember that the head is fixed above the acetabulum instead of being in the socket. But in case we get a good stability the degree of shortening does not amount to very much. The limping in the cases of hip-dislocation is caused less by the shortening than by the telescopic movement which appears whenever the patients put some weight on the limb. A high sole of about one-half or three-quarters of the amount of the shortening caused by the subspinal position is as a rule sufficient to make the patient nearly normal.

Real redislocations, that is, posterior superior redislocations, should not be obtained at all. A well-developed technic knows how to exclude them during the time the patients are in the cast, and a careful after-treatment prevents the changing of a subspinal position into posterior superior redislocation.

After consideration of these points, we are fully justified in calling the subspinal position good result. Different experiments, however, have been made to eliminate the so-called subspinal position from the results of the reposition of the congenital hip dislocation altogether.

My researches and experience on this subject are very encouraging, and will soon be ready for publication.

Discussing the results which were gained in cases operated upon by A. Lorenz during his visit in 1902, I am able to refer to thirty-three cases left under my care, in twenty-one of which anatomical results were gained, whereas the number of subspinal positions were twelve.

Among the anatomical results depressions of the head which stood, after removal of the first cast in suprapubic or pubic position were necessary in six cases; function and motion in these patients became normal.

Stiffness of the joint operated upon followed in four cases. All these cases are improving under continuous treatment, so that in all of them good motion as an ultimate result can be assured. The cause for this stiffness was in some cases the advanced age of the children; in some others the insufficient exercise the children had in their first cast.

Taking into consideration the high average age of the children operated upon by Lorenz, the results, comprising over 60 per cent. anatomical cures and less than 40 per cent. subspinal positions, must be called good ones.

Among other reliable statistics compiled of cases operated upon between the age-limits, I quote Drehmann, E. Müller, Joachimsthal, Braun and Lange.

The corresponding figures for anatomical results compared with subspinal positions are in Drehmann's, 43:13; in E. Müller's, 28:12; in Joachimsthal's, 17:6; in Braun's, 57:60; in Lange's, 23:13.

Statistics of surgeons in various clinics show clearly that Lorenz' promise of 50 per cent. anatomical cures is not too optimistic, and that

the bloodless reposition deserves the first place among all methods which may be considered in the treatment of congenital dislocation of the hip.

LITERATURE:

- A. Lorenz: Die Heilung der angeborenen Hüftgelenksverrenkung, etc. Wien, 1900.
 Braun: Zur unblutigen Therapie der Luxatio coxae congenita. Langenbeck's Archiv, 1904, Heft 3.
 Lange: Die unblutige Behandlung der angeborenen Hüftgelenksverrenkung. Münch. med. Wochenschrift, 1904, No. 20; Deutsche Zeitschr. für orthop. Chir., 1903.
 Mueller: The Lorenz Operation as seen in the American statistics. Illinois State Medical Journal, October, 1904.
 Mueller and Ashley: The treatment following the bloodless reduction, etc., New York Medical Journal, April 23, May 21, September 10, 1904, January 7, 1905.
 Mueller: Bloodless reposition of the congenitally dislocated hip-joint versus arthrotomy. Journal of the Am. Med. Assoc., June 17, 1905.

SPINAL HEMORRHAGE; SOME OF ITS GENERAL PHASES.¹

BY WILLIAM BROWNING, M.D.,

OF BROOKLYN, N. Y.;

PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM,
 LONG ISLAND COLLEGE HOSPITAL,

AN understanding of the whole subject of spinal hemorrhage, to be satisfactory, should be based on a knowledge of the anatomy and mechanics of the local circulation. On the structural side the subject is well advanced, but of the dynamics of the intraspinal circulation we have little information beyond that afforded by the anatomical arrangements. The facts regarding even the encephalic circulation are not entirely clear, though more than a hundred years have passed since Monro's writing.

The connected cranial and spinal cavities may have been supposed to be under parallel conditions. The circulation within the vertebral canal, however, has certain peculiarities. As the cord is such an elongated structure, the myelic space so much smaller than the encephalic, as the cord is under such varying and elastic local surroundings, subject to frequent flexion and with a different relation to gravity, as the spinal subarachnoid in postnatal life is only a non-absorbing diverticulum for the cerebrospinal fluid, these and other circumstances place the dynamic problems of the local circulation beyond any expectation of simple solution. In fact, from a physiological standpoint, this matter has received little independent consideration. Moreover, in the case of the cord, the so-called irritative phenomena are of a different character and more constant and dominant than in brain-lesions. In neither case are we well informed as to the sensory and vasomotor supply of the organ itself, a lack that is more serious in the study of the myelon than in that of the brain.

It is more scientific to recognize these defects in our equipment at the start, and then proceed.

Etiology.—As to their causation, the various forms of spinal hemorrhage may be put into three categories: (1) The traumatic, far the most frequent, and hence of most practical importance; (2) the secondary, starting from softening inflammation tumors, and the like; (3) the spontaneous, of chief theoretical interest. It

¹ Presented before the New York County Medical Society, February 27, 1905.

has been much disputed whether this form ever occurs, although at present the view that there are such cases is widely accepted. The interest in cases of this last class lies not so much in their obscurity, as in the fact that for the study of symptoms uncomplicated cases are necessary. Hence special shock, fractures, displacements and the like make the interpretation of this phase in traumatic cases extremely difficult.

All forms occur more frequently in the cervical, more particularly the lower cervical, region of the spinal cavity. This may to a slight extent be due to its proximity to the larger supply vessels. The greater size of the cord here may also play a minor rôle. But the fact noted is without doubt chiefly owing to the greater mobility and vulnerability of this part of the column. On the other hand, the dragging up and down of the lower cord might be expected to have some effect or modify the type there.

Classification and Terminology.—To pile up more cases of this kind in an indiscriminate manner can serve little purpose. One of the main obstacles met with in writing this paper has been the absence of any satisfactory and systematic classification of these cases. Boscredon made a partial attempt, but not to much practical purpose; only on that foundation has a comparative study much value. There are at least three anatomically distinct forms of spinal hemorrhage, viz., (1) epidural; (2) submeningeal; (3) myelic. These can be tabulated so as to admit of an indefinite further division of forms, as follows:

Spinal Hemorrhage	I. Epidural:	{ Infantile. Adult.
	II. Submeningeal:	{ Subdural. Subarachnoidal. Subpial.
	III. Myelic:	{ Central. Punctate. Focal. Secondary.
	IV. Mixed and Complicated:	{ Hematomyelitis.

A considerable terminology has been devised by one and another with reference to these cases. But the terms just given, while perfectly intelligible in themselves, are also believed to be free from possible misinterpretation.

Hemorrhachis, hemorrhachis, myelorrhagia, meningorrhæa, hemorrhage into the vertebral canal or spine, are not sufficient without further limitation. Meningeal or even intrameningeal is also an unsatisfactory term; certainly the epidural form should no longer be included with the meningeals. Hematomyelitis is admissible if we really mean a hemorrhagic myelitis; but if that term is retained, then it is confusing to have also a hematomyelia (in the sense of simply a hemorrhage into the cord); if, instead, we say myelic hemorrhage, misunderstanding seems impossible.

Terms like spinal apoplexy, meningeal versus

myelogenic, or intrameningeal may have a proper use when applied intentionally in a general sense. The hemato-myelopore of Van Gieson refers to a later formation.

The Epidural Space and Vessels.—The vessels here consist principally of veins, though both arteries and veins for the cord traverse the space with the spinal nerves. The epidural veins constitute a considerable plexus lining the inner surface of the vertebræ and imbedded in scant fat and connective tissue, the whole filling up the space between the free spinal dura and the lining periosteum of the bones. In a way they correspond to the dural sinuses about the brain, although not as exclusively for conveying blood from the organ beneath. In the common animals I have always found an ample layer of fat all around the myelon, carrying these vessels and serving more completely to cushion the cord. But in man there appears to be less of this protection. The cord lies anteriorly close to the ligaments and bodies of the vertebræ, separated only by some areolar tissue. Posteriorly, however, even in the human, there is more space; a thin layer of fat and loose tissue fills it up, and here the veins course irregularly, though connecting freely among themselves and with outside veins. The only original drawing of these appears to be that in the old atlas of Breschet (Paris, 1829). Some of these veins extend in front sufficiently to connect with vessels in the bodies of the vertebræ; to attempt to inject them through the vein of the body of a vertebra is, however, a slow process, the intervertebral foramina appearing to be their most natural channel of exit.¹ Anterior and posterior and connecting plexuses of veins have also been described. At any rate, the epidural venous plexus is the source of hemorrhage in this locality.

From the arrangement of this space and its vessels, it follows that when free blood is found here it is naturally collected more or less behind the cord and its dura. Under such circumstances it appears to exert a uniform pressure on the whole myelon, and not, as might be imagined, especially on the posterior columns. Nor does fluid here always spread out as freely up and down as might be presumed.

Effusion of blood into this space may be of traumatic or, less often, of spontaneous origin. Manley² figured it as the chief seat of traumatic intraspinal hemorrhage. I have seen such a case where a thin layer of coagulum extended posteriorly along the cervical and a considerable part of the dorsal region, giving rise *intra vitam* to symptoms with a peculiar variation.

This epidural form has been found to be especially common in the new-born. Abercrombie recorded a case (p. 374). Matuszinski³ found

¹ W. Braune, "Ueber die Intercoastalvenen des menschlichen Körpers," Bericht d. k. sächsischen Gesellschaft der Wissenschaft, Math.-physic. Classe, 1883, Bd. 35, pp. 76-84.

² Journal of Nervous and Mental Disease, 1893, 484.

³ Gaz. med., 1837.

it in 16 of 25 autopsies in tetanus neonatorum. Thore¹ added another. Schäffer's series may also be mentioned. Protracted and difficult labors, and especially tetanus, are the recognized factors here, and with the spinal effusion is often associated. "extensive hemorrhage within the skull."²

That tetanus may bring on this form of extravasation in later years than infancy is shown by cases XVII and XVIII of Hayem's series. Both followed crushing of fingers, one in a boy of twelve years, the other a child of eleven years, in each the effusion extending the whole length of the rachidian canal between dura and bones.

Aside from the infantile and tetanic forms, it has been possible to gather a number of cases of the epidural type, with no complicating injuries, and from these some information can be gleaned.

1. Howship, "Obs. in Surg. and Morbid Anat.," 1816, 115. Boy of twelve years. Jerked violently backward by a lasso around his neck. "For some months he felt nothing in particular," although he was lethargic. Pain and stiffness in the back part of the neck nine months later. Became paraplegic, and upper extremities involved. Difficulty in urination. Lethargy of bowels. Pain in small of back so severe as to make him cry out. Respiratory interference. Death in about a month. Cranial contents healthy. "A large quantity of extravasated blood was found in the cellular texture between the bones and the theca vertebralis" of the cervical region. The spinous processes of the four superior dorsal vertebræ were successively separated, by which operation the whole extent of the mischief was brought into view. Between the atlas and dentata the blood had made its way out between the bones backward, forming a small coagulum outside. Trouble mostly cervical. The vessels upon the posterior surface of the spinal marrow had suffered rupture. Condition of meninges and cord not stated.

2. Laennec, *Revue médicale*, 1825, T. 2, p. 359 (v. Boscredon). Man (age not stated). Signs of aneurism. Sudden attack of incomplete paralysis. He died in some hours. No mention of pain in connection with the rupture. Small clot at the level of the body of the eighth dorsal vertebra, between it and the dura. Also rupture into left pleural cavity.

¹ Arch. gen., 1845.

² That this is not the only form seen in the infant, however, is shown by the case of d'Herbécourt (Bull. et mem. Soc. Obst. et Gynéc., 1898), where the child lived twenty-five minutes, and a small bilateral hemorrhage was found at the base of the anterior horns in the cervical region. And Schultze has called attention to the effect of prolonged labors and his system of resuscitation, in causing central cord-hemorrhage in the cervical region. Beevor's case of hemorrhage into the cord at birth (Brain, 1902, 85) was due to a dislocation of the column between the third and fourth dorsal vertebræ. Dr. H. R. Spencer's investigations on "Visceral Hemorrhages in Still-born Children" (Trans. Obst. Soc. London, 1891, 2, XXXIII, 270) showed that hemorrhage had occurred in 30 of the 44 cases in which the spinal cord was examined; outside the theca in 21, between dura and arachnoid in 2, in the arachnoid in 6, beneath the pia in 3, into the pre-cornua in 4, into Goll's column in 1, and into the whole thickness of the cord in only 1; "Spinal hemorrhage is greatly favored by the presentation of the lower extremity."

3. Bigot, *Thésé de Paris*, 1845, p. 13 (v. Boscredon). Man of seventy-nine years. Difficulty of movements. Involuntary discharge of bladder and bowels. Contraction of lower extremities. Head inclined to left shoulder. No pain. No fever. Duration a year. From the second to the sixth cervical vertebra, between the dura and the bony canal, a yellowish unorganized focus with a black clot of blood in its upper part opposite the axis, the whole having the appearance of an apoplectic focus.

4. Boscredon, *Thésé de Paris*, 1855. Girl of fifteen years. Trouble began with nausea, pain in abdomen and constipation. Difficulty of speech. Later repeated convulsions. Involuntary discharge of bowels and bladder. Opisthotonos. Dorsal and lumbar pain. The general sensations continued intact as long as they could be followed (up to three days of death). Duration, fourteen days. At the autopsy peritonitis and multiple perforations were found. Also blood the whole length of the spine, external to the dura, between it and the vertebræ. Cord with its membranes otherwise normal, as also the brain.

5. R. Jackson, *Lancet*, 1869, II, 5. A vigorous young woman of fourteen years. Two days slight signs. Weak feelings, "but free from all pain." Arms largely paralyzed. No anesthesia. Respiratory weakness. Sir W. Jenner diagnosed, with perfect accuracy, a clot in the cervical portion of the spinal cord. Death in about six days after the first premonition, without pain, without loss of consciousness or sensation, but from respiratory failure. A softened spot and ill-defined clot in the cerebellum. The whole cervical portion of the spine, but particularly anteriorly and to the left side, was imbedded in an oblong clot of dark venous blood outside the membranes. The whole length of the cervical portion of the canal and dura mater were deeply tinged by the color of the clot. The cervical nerves all passed through this effused blood, the intervertebral canals on both sides being filled with it. As soon as the seventh cervical vertebra was reached the clot ceased, and the cord and canal assumed their normal condition and color. There was also a good deal of semi-clotted blood about the pons, and the nerves arising from it. Venous blood, he says. The only explanation is, that the effusion took place very gradually, had room to extend itself, and coagulated slowly and imperfectly.

6. Lutz, *St. Louis Medical and Surgical Journal*, 1885, Vol. 48, p. 235. Man of forty-seven years. Fall. Paralysis of all four extremities. Sensation preserved. Bladder and bowels under control. "The only symptom aside from the paralysis of which the patient complained was sleeplessness." Partial motion reappeared in the lower extremities. Death in about a month (?). No vertebral dislocation and no fracture. "In the spinal cord itself there

was no hemorrhage, but between the spinal cord and the bony walls there were two distinct hemorrhages. The first extended from the last cervical to the fourth dorsal vertebra, and the second from the last dorsal vertebra to the *cauda equina*; both clots were situated posteriorly. The inferior hemorrhage was more extensive than the upper one, and it pressed so much upon the cord itself as to produce a very appreciable softening of the entire cord, besides flattening it anteroposteriorly."

7. P. Bailey, *N. Y. Pathological Soc.*, 1894. Man of fifty-nine years. Three months before, he had become overheated, and had been in the hospital for five hours. On leaving the hospital he had complained of some pain about his chest. Now suffering from paraplegia, which had occurred very suddenly and without apparent cause. Loss of knee-jerks, incontinence of urine and feces, and anesthesia below the midthoracic zone. Death in a few days. An aneurism of the aortic arch was found, eroding adjacent vertebrae. On opening the spinal cord by the posterior method, a firm blood-clot was found embedded in the dural fat. It was situated on the posterior surface of the dura at a point corresponding to the third, fourth, and fifth dorsal segments, and was distinctly circumscribed. Underneath this clot, at the fourth dorsal segment of the cord, was an area of necrosis. The aneurism must have ruptured some time before death.

8. W. Bain, *British Medical Journal*, 1897, II, 455. Servant girl of eighteen years. Constipation. After a bowel movement following some pills, and in full consciousness, she developed a sensation of numbness all over, difficulty in walking. She soon had labored breathing, weak voice, pain in the back of the neck, paralysis of the left arm and right leg, and paresis of the right arm and left leg. Knee-jerks gone. Sensation impaired. Pupils normal. Pulse 52. Face pale. Some anemia awhile before. Then a watery discharge from the bowels, collapse, exitus. No traumatism, and no sign of it found. "A clot between the dura mater and the spinal canal," beneath the third cervical vertebra. It was a medium-sized clot, and took up the length of the second and third vertebrae, at the back and more to the right side.

9. Hopkins (of Denver), *Extradural Spinal Meningeal Hemorrhage*, *New York Medical Journal*, 1899, II, p. 206. Man, age not given, a coal shoveler, was suddenly seized by a "peculiar sensation throughout body, not painful. Paraplegia in about twenty minutes. Then complained of sharp, excruciating pains in the lower portion of the back, extending around the abdomen and down the thighs. Sensation lost in lower portion of the trunk and legs, but this and motion later returned. Girdle sensation. Incontinence of urine and feces. Convulsion and death on the fourth day. On removing the spinous processes, the canal external to the dura was found to be

filled with liquid blood and a few small clots. The latter were found in the lumbar region. The hemorrhage occurred primarily in the lumbar region of the spinal canal, as was demonstrated to be the case at the post-mortem.

10. A. Cochez, "Hémorrhagie meningée spinale en dehors de la dure-mère," *Arch. d. Neurolog.*, 1902, XIII, 42. Patient was a man of forty-five years, heavy drinker and former soldier. In consequence of being thrown to the ground and of numerous blows about the body, he developed cramps in the calves, tremor, amnesia, blunted sensation, especially in the lower extremities, and great mental depression. Patellar reflexes exaggerated. Atrophy and imperfect action, rather than true paralysis of lower extremities. Micturition and defecation preserved. He retrograded until his general condition became paretic. On the seventh day in the hospital he suddenly gave out. Complete paraplegia and anesthesia of lower extremities. Incontinence. Death thirteen days later. At the autopsy an extensive hemorrhage was found in the dorsal and lumbar portions of the spinal column, outside of the dura. To its causation doubtless a chronic Bright's contributed, besides trauma and chronic alcoholism. Brain and cord normal, except slight subarachnoid edema.

While this collection of ten cases may not suffice to warrant very sweeping conclusions, it indicates a correction of current teaching on important points.

It has always been customary to include this form under the meningeal class. And it is common teaching of the authorities that meningeal hemorrhage is the more painful.¹ Comparison shows, however, that the epidural cases exhibit the symptom of pain far less often than either the submeningeal or the myelic.

Of the ten cases, one (4) is indefinite and so complicated with peritonitis as to be unavailable. Of the remaining nine, though two were due to rupture of aneurism, and hence less certain, there appears to have been a distinct complaint of pain at the onset or subsequently in only three. On the other hand, in the 20 myelics tabled below, pain was present in all except one too demented for determination and one occurring in a typhoid.

Nor was marked pain a beginning symptom in either of the epidural cases, as so frequently in the deeper forms. Evidently sensory fibers are scantily supplied to this space, and pain comes on, if at all, only after inflammatory or other involvement of the membranes.

We also find in these cases far less tendency to impairment or loss of sensation than in the myelic form. There was anesthesia below the level of injury in one, and sensation dulled or only temporarily involved in three. In some of the remaining six it is especially stated that sensation was unaffected. Hence it is fair to conclude that

¹ The conclusion of P. R. Bolton (*Ann. of Surg.*, 1899, II, 176), that "extradural hemorrhage does not give rise to cord lesions or symptoms," was based on traumatic cases, and certainly does not apply here.

in a half or more of these cases no impairment of sensation occurs, and that complete loss is unusual.

If for comparison we turn to the twenty cases of the myelic type, it appears that one was too stupid to be accountable, and one terminated suddenly. Of the remaining 18, all showed sensory loss, usually marked. Consequently some and often complete anesthesia is found in all myelics, as compared to only a half or less of the epidurals.

The explanation of this difference is simple. We know that pressure interferes with the transmission of motor impulses much sooner than with sensory, and this applies in the central nervous system as well as in the peripheral. Naturally a clot outside the dura will not tear or press upon the tracts as though in the cord itself. In any collection of cases sufficiently severe to check motion, there would inevitably be a few forcible enough to involve sensation somewhat.

Doubtless careful observation at the onset would show even then an earlier motor than sensory involvement.

The occurrence of girdle sensation is also to be mentioned. It is noted in but one of these ten, although observed in 5 or more of the 20 myelics.

Another available distinction on the sensory side is furnished at times by the dissociated loss of sensation. This has not been observed in the epidurals (nor is there any ground to suppose that it will be), but in even the primary myelics it has occasionally been noted. The presence of this in any given case can be taken as *prima facie* evidence that it belongs to the myelic form. These various points show that the epidural class should be distinguished for practical purposes from all other (intrameningeal) forms. Any criticism of these comparisons because they are in part based on old cases does not apply, as old and new have been utilized alike in each series.

The other symptoms it is not the present purpose to consider specifically.

In location there were four cervical, two dorsal, two dorsal and lumbar, one lumbar, and one general. The males are seven, females three. In age there are two widely separated groups, one between ten and twenty years, and all the others over forty-five.

The anatomical arrangement, above described, with the consequent tendency in man for the bleeding to start and the blood to collect in the posterior and most accessible portion of the vertebral canal, affords an opportunity for surgical relief. If clinical aids for the differentiation of this extradural form can be established we have a positive and hopeful surgical indication. Jenner made the correct diagnosis of a cervical hemorrhage in Jackson's case, and with the help of the signs just pointed out the warrant for interference may occasionally be clear.

II. *Submeningeal Hemorrhage (Subdural, Subarachnoidal, Subpial).*—In cases of brain-hemorrhage rupturing into the membranes, blood

or tinged fluid is often found in the spinal extension of the spaces. But there is no evidence to show that this gives rise to symptoms.

Except as a complication the subdural spinal form is unimportant. It must almost invariably be consequent to the breaking through of what was primarily an extravasation into adjacent parts. Somewhat the same holds for the subarachnoidal form, although here there may have occurred a direct vascular leakage into the pia-arachnoidal meshes. The subpial form, however, appears at times independently, and gives rise to very positive manifestations. It is probably impossible as yet to find pure cases of these types¹ in sufficient number to permit a study of the independent symptomatology of either. Because they are so largely complicated with cord troubles, or for whatever reason, these meningeal forms resemble very closely the myelic cases. Frequently in these the free blood is found so widely diffused as to leave their regional origin in doubt. In the dispute (Gowers vs. Osler) whether this or the epidural form is the more common, all depends on what cases are counted on either side.

III. *Myelic Hemorrhage.*—This of course arises from the cord vessels proper, including those of the pia. The best drawings of these are to be found in the articles of Adamkiewicz² and more particularly in the monograph of Kadji, "Ueber die Blutgefäße des menschlichen Rückenmarkes," Lemberg, 1889.

A far smaller effusion here than in the brain suffices to produce pressure effects, and even a transverse destruction. As is the case in the brain, we here meet with the added effects of reaction in the neighborhood. Some break through into the central canal or under the pia. Coma, or involvement of the brain or the cranial nerves, does not result.

Cases of hemorrhage into the cord itself may be conveniently divided into three groups.

1. *The Central or Tubular Form.*—Here the effusion starts in the central gray and infiltrates longitudinally, following lines of least resistance. Cases due to violence tend so often to take on the elongated shape, that traumatic is considered synonymous with central. In proportion to volume the cord appears to be quite as frequently the seat of traumatic hemorrhage as is the brain. In this tubular form the paralysis more often extends from below upward, and may increase for some days. Its starting point depends chiefly on the part that bears the brunt of the injury. The cervical region is most exposed, but the lumbar enlargement is a frequent site, and no part is proof. The way in which the violence produces the bleeding doubtless varies much. Fractures and dislocations may directly tear the vessel across, or a weak point may give way under strain. In some it is claimed to develop in con-

¹ For cases of these and mixed forms, see (1) Claubry, 1808; (2) Chevalier, 1812; (3) Stroud (Bright's Repts., II), 1828; (4) Fallot, 1830; (5) Pfeuffer (Obs. XI), 1844; (6) Berkeley, 1890; (7) Lanford, 1894; (8) Riggs, 1896; (9) Janeway (mentioned by Starr, 1904), etc.

² Sitzb. d. k. Akad. d. Wiss., 1881 and 1882.

sequence of a powerful though transitory sharp forward bending of the cervical spine.

This form has been specially studied of recent years.

L. Minor's observations, seconded by Goldscheider and Flatau's experiments on the paths by which this hemorrhage spreads, may be mentioned. Minor applied the term central hematomyelia to cases showing a combination of muscular atrophy and paresis with the syringomyelic type of sensory impairment. The manifestations may verge on those of syringomyelia, but whether the latter condition results as a sequel is still a question. In a non-traumatic case that I have followed for five years there has been continual improvement, though at one time it illustrated Bruns' statement that when "situated in the cervical region of the cord, a more or less extensive atrophic paralysis of the arms remains." There are, however, cases of cavity formation in the cord, following accident, with a gradual increase of symptoms, and that correspond so well clinically and anatomically that but for the history there is little question the diagnosis would read syringomyelia.

2. *The Punctate Multiple and Often Capillary Form.*—This is frequently associated with some inflammatory process (hemorrhage myelitis). Cases have, however, been observed where these minute extravasations extended widely along the gray of the cord. My predecessor, the late Dr. J. C. Shaw, claimed that this was at times an independent affection and admitted of diagnosis as such. A case of the kind was observed at the King's County Hospital some years ago. For present purposes this may be considered with the third type.

3. *The Single or Focal Form.*—This is the type that has been supposed to correspond to the ordinary form of cerebral hemorrhage. It includes most cases of spinal apoplexy due to hemorrhage. Even here the output is rarely as large as a hazelnut or an acorn (Leyden, Birch-Hirschfeld), but may assume an elongated shape and thus approach the tubular.

As the nature of many cases of this class, especially the question of their primary or secondary origin, has been the subject of much discussion, I have taken the trouble to review a number of the published descriptions. Some phases of the subject call for mention. For that matter cerebral hemorrhage starts not so very rarely in a previously softened spot.

Levier in 1864 collected 17 cases of spinal hemorrhage; Hayem in 1872 brought the number up to 34; and Berkley¹ in 1890 raised it to 45. It will be found on comparison, however, that these include nondescript and unrelated cases to an extent that detracts from the value of their statistics and conclusions. If we include in this rubric only myelics free from traumatism, epilepsy or local tumor, and exclude also those with brain complications or occurring at birth or unverified

by autopsy, our list even when brought to date is materially reduced. This leaves only hemorrhage with or without softening. A sufficient number for illustration and comparison have been tabulated, not all the known cases, but the first twenty old and new that came to hand.

It is the usual comment that such cases are very rare.

This cannot be due, as thought by some, to the non-occurrence of aneurismal dilatation of cord-vessels. Hoch¹ cites a number of such descriptions, and in addition may be noted the observations of Liouville,² Brasch,³ and Guizzetti and Cordero.⁴ It is besides now recognized that previous alterations of this kind in the vessels play less of a rôle in brain hemorrhage than was once supposed.

It may not be amiss, however, to consider whether spinal hemorrhage is certainly so much less frequent than cerebral. On the basis of the proportionate size of the organs (the cord being approximately one-fiftieth as large as the brain), we need not expect myelic hemorrhage to be other than a great rarity. Even in the brain it is only in the limited areas supplied by the comparatively large terminal arteries that hemorrhage is often observed. The remaining and major part of the encephalon is relatively immune.

Now, although the ultimate supply arteries for the myelon are all endarteries, we have here (and more perhaps than elsewhere in the body) an indirect blood supply. None of the myelartries appear as immediate continuations of the systemic arteries, but rather are derived from an arterial network (pool) in the spinal pia: the efferents unite in a chain, and from this the parenchymatous vessels pass off. Such a plan furnishes a more perfect protection than does the circle of Willis in the brain.

Hence volume for volume it is still possible that the cord is as subject to spontaneous hemorrhage as are the relatively free portions of the encephalon. This possibility is worth suggesting as a counterpart to the widely raised query whether primary cord hemorrhage ever occurs.

It is, however, surprising to note how many of the cord cases start before the usual period of life for cerebral hemorrhage. In the 20 here scheduled there were only 7 (or about a third) in persons over forty-five years old. This large number of early occurrences is the more striking, as these patients were all over ten years of age, and yet, according to mortality statistics, three-quarters of those living at ten years do not die until after forty-five. In any individual then the liability diminishes toward the decline of life.

From this and other features it becomes evident that these hemorrhages must be due, largely at least, to other causes than are operative in the brain. A number of times the anomalies and congestions of the sexual sphere are noted as etio-

¹ Johns Hopkins Hosp. Rpts., 1891-2, II, 351.

² Soc. de Biol., 1872.

³ Berl. klin. Woch., 1900.

⁴ Riforma med., 1903.

¹ Brain, 1890, January.

Author.	Publication.	Age.	Sex.	Pain.	Sensation.	Motion.	Blad. and Rect.	Lesion and Site.	Duration.	Complication.
1. Hutin	Nouv. Biblioth. Med., 1828, I, p. 170.	70	M.			Legs weak		One clot in lower cervical region; and one at fourth dorsal		Limited intellect
2. Cruveilhier	Anat. Path. 3 liv., Pl. vi, 1829-35	36	M.	Sharp in neck and extremities.	Anesthesia and analgesia	Lost in trunk and extremities	Both completely paralyzed	Old cervical clot New effusion through whole length of spinal gray	40 days	One attack 4 or 5 years before
3. Curling	London Path. Soc., 1849 p. 28	44	M.	Pain at wrists	Lost (Girdle sensation?)	Paraplegia	Urine scanty	Clots between origin of second and third dorsal nerves, with infiltration up and down	4 days	Priapism Gastric pains
4. Ogle	London Path. Soc., 1853.	39	M.	Present.	Impaired in legs	Increasing weakness in legs	Trouble in urinating	Extravasation of blood in post. white and gray at tenth dorsal vertebra	3 weeks	Hemorrhage in oblongata
5. Levier	Abst. in Med. Ti. and Gazzet. 1865 (1864)	18	F.	Violent in lumbo-sacral region	Lost in lower extremities	Paraplegia	Retention of urine	Hemorrhage and surrounding softening tenth vertebra down	24 days	Decubitus Attack came instead of menses
6. F. Duriau	Union Med., 1859, No. XX, pp. 307, 340, 373 and 389.	26	M.	Acute in dorso-lumbar region.	Analgesia Temperature and contact retained Girdle sensation	Completely lost in legs	Retention of urine	Clot at level of eleventh dorsal nerves; softening down to end of cord	18 days	Edema of ankles Decubitus
7. A. Gorsse	Thésé. Strassb. (Schützenberger's clinic) 1870	68	M.	In legs and lumbar region	Anesthesia to umbilicus	Paraplegia	Retention of urine	Hemorrhage in gray of last decimeter of lumbar cord No softening of any account	About 37 days	Decubitus Vigorous and intelligent man
8. Bourneville	Gaz. Med., No. 40, 1872	58	F.	In back and side of neck	Impaired on right side	Paralysis of left arm	Involuntary movements of both	Oval hemorrhage in middle lateral cervical cord from first to seventh pair	1 week	Dysphagea Dyspnea Uncertainty of ideas Swelling over left mid-cervical vertebra
9. Liouville	(Obs. LXVIII of Hayem) V. Lefebvre, p. 18, 1872	25	M.	Extensive and severe	Anesthesia and retardation in legs Girdle sensation	Paraplegia	Retention of urine Weakness of both	Hemorrhagic focus through whole dorsal and most of lumbar cord Old arachnitis; softening	2 months	One attack 4 years before. Died of septicemia and tuberculous bronchitis
10. Eichhorst	Charite Annalen, 1874, I, p. 195	28	F.	Light pain in left arm. Sticking, pricking feeling from umbilicus to toes	Lost Girdle sensation	Palsy of legs and arms	Retention of urine Paralysis of bowels	Blood points and red-softening in dorsal and cervical cord	5 days	Began on last day of a menstruation
11. Goldtdammer	Virchow's Arch., 1876, LXVI, p. 1.	15 1/2	F.	Severe in arms and bet. scapulae	Complete anesthesia to breasts Girdle sensation	Paraplegia	Paralysis of bladder and torpid bowel	Spot of softening at level of second dorsal nerves	1 year	Had not menstruated
12. C. Lefevre	Paris Thesis, 1877	63	M.	In neck and shoulder	Analgesia Relative anesthesia Heat and cold sense diminished No girdle sensation	Quadriplegia	Retention of urine and feces	Hemorrhage between third and fourth cervical pairs involving ant. and post. horns	12 days	Decubitus Vigorous and intelligent

Author.	Publication.	Age.	Sex.	Pain.	Sensation.	Motion.	Blad. and Rect.	Lesion and Site.	Duration.	Complication.
13. Page	Lancet, 1880, I, p. 445	10	F.	In neck and left arm	Not mentioned	Stiffness in neck and shoulder		Clot and infiltration with softening in lower cervical region	4 days	Sudden death from paralysis of respiration after defecation
14. Woods (Lyster)	Lancet, 1880, II, p. 694	16	F.	Neuralgic along fibular nerve	Anesthesia of left leg	Paralysis of left leg	Paralysis of rectum and incontinence of urine	Clot 1 inch long lying lengthwise opposite ninth dorsal vertebra and cord "broken up"	3½ months	Edema decubitus and contracture
15. Wilkins	Montreal Gen. Hosp. Reports, 1880, I, p. 111	40	M.	Slight in shoulders and legs	Lost below nipple line	Impaired in arms; lost in legs	Retention of urine	Hemorrhage between fifth and sixth cervical nerves. Clot from second cervical to fourth dorsal	10 days	A drinker
16. Sinclair	Lancet, 1885, II, p. 1043	24	M.	Severe in legs	Lost from waist down	Paraplegia from waist down	Vesical incontinence	Hemorrhage and disorganization in gray from sixth to eighth dorsal vertebra	6 days	Ankle clonus Intense anemia
17. J. J. Kindred	MEDICAL NEWS, 1892, Feb. 13	59	M.	Severe simulating angina pectoris and also dorsal.	Numbness up to level of lesion	Paralysis of legs	Both paralyzed	Clot in gray at level of fourth dorsal segment, with softening	6½ hours	Priapism Embarrassed respiration
18. A. Schiff	Deut. Arch. f. klin. Med., 1900, vol. 67, p. 175	19	M.	None	Absolute anesthesia in the 4 extremities	Quadriplegia	Both paralyzed	Hemorrhage with focus at fifth and sixth cervical, running up to second segment. Another from fifth to eighth dorsal	18 hours	Occurred on ninth day of typhoid Lumbar puncture showed cerebrospinal fluid normal
19. Collins and Zabriskie	Med. Record, 1904, II, 361	51	M.	Sharp in legs in early part	Diminished in legs	Inability to stand and progressive paraplegia	Incontinence of both bowels and bladder	Arteriosclerosis and hemorrhage at ninth dorsal segment, in left ant. and right post. horns	A few months	Decubitus General arteriosclerosis. Death from heart weakness
20. Browning and Tilney	MEDICAL NEWS, 1905	59½	M.		Nearly abolished in legs	Paraplegia	Retention of urine	Microscopic hemorrhages in lumbar segments Hemorrhagic fluid outside dura	12 days	Operation. Changes in cerebrospinal fluid

logical factors. The special mobility of the cord, the fact that it is subject to bending, pulling and stretching¹ makes us wonder that its vessels are not oftener ruptured. In the common procedure of spinal puncture we can easily note that flexing the column forward increases the pressure of the fluid, and unbending relaxes it again. This change must, of course, be transmitted to the vessels. In these several ways the local circulation is put to varying tension and strain, the effects of which may be soon apparent or again cumulative and remote. We thus find an explanation for the greater frequency in the working years, and can conclude that myelic hemorrhage is not usually a result of the degenerations (or involutions), but of the activities of life. This

is not synonymous with saying it is directly traumatic. It is a different process from brain hemorrhage, and consequently not properly comparable with it numerically or otherwise.

This interpretation also bears on the occurrence of multiple bleedings and adjacent softening, that have proven so confusing. The excess of males is readily explained on the same basis. This preponderance has been evident in every series, the ratio in the present one being 14 males to 6 females.

The somewhat greater frequency in the cervical region (these 20 show 9 cervical, 8 dorsal, 1 lumbo-dorsal, and but 1 lumbar) may, as pointed out above, be likewise attributed to the greater wear and tear in that part.

Although claimed by some that spinal apoplexy

¹ Hegar, Wien. med. Blätter, 1884.

is always ushered in with sharp pain, and by others, on the contrary, that the form within the cord substance is not so apt to be painful, the figures already given show that neither statement is quite correct, but that pain always attends some stage of the myelic form. A number of cases in the literature (all, however, without autopsy), from their painless course, indicate otherwise; but the verified facts suggest that they were of a different character; that spinal apoplexy is not always the result of vascular rupture. Accurate determinations of the body temperature are more valuable in the differentiation of these forms than heretofore recognized, although Parkin¹ acknowledges it is raised in hemorrhagic myelitis.

Owing to inapposition of cord segment and vertebra, it is possible that a number of the earlier dorsal cases were really lumbar.

Prognosis in the Various Forms.—Where there is any complication, as inflammation, tumor fracture, or such unfavorable sequels as decubitus, cystitis, respiratory weakness, etc., the outlook is correspondingly affected.

The epidural space offers excellent chances for absorption, and a specially good prognosis has been claimed. Still, there appears to be no proof of this as yet. The submeningeal forms are so largely complications as to have little independent significance. When not too free or prolonged, such effusions may undergo a slow absorption. In fact, according to Bruns (Twentieth Century Practice), "Perfect recovery usually results in hematorrhachis." Of the myelic cases it is known that they are not apt to be rapidly fatal, except those above the origin of the phrenics, when asphyxiation promptly ends life. There is some evidence to show that the course of lymphatic absorption in the myelon is upward; consequently the disappearance of material from the lower levels of the cord must go on very slowly. That instances of the myelic form may fully recover, however, is shown by the well-known case of Cruveilhier²; here the paralysis passed away after three months, and at the autopsy, five years later, the cicatrization on one side of the cervical cord showed the old hemorrhagic focus. Inasmuch as non-fatal cases lack proof and are less likely to be described, it is impossible to calculate the prospect more exactly. Recognizing that there are favorable and unfavorable cases, each must be determined on its own manifestations.

Tuberculosis Congress Meets in Paris.—The International Tuberculosis Congress was opened in Paris, October 2, by President Loubet. Thirty-three countries were represented. The members of the congress, including the exhibitors at the exposition of appliances, etc., numbered five thousand. The hall was crowded, and there was a large number outside.

VESICAL FISTULA.¹

BY HERBERT H. PURINTON, M.D.,

OF LEWISTON, MAINE.

VESICAL fistula is of comparatively rare occurrence, but when it does occur, it gives rise to so much discomfort of body, and distress of mind, that it is worthy of the surgeon's skill, best thought and attention.

Leaving out operations which require an opening being made in the bladder, or some very rare accident, like a wound made by a pistol ball, vesical fistulæ are almost wholly confined to women.

A woman afflicted with a vesical fistula is shut out from all society and places of amusement, is confined to the house, and in some cases to her room. She loses health in consequence of loss of exercise, fresh air, bodily suffering, and mental distress.

Luiz de Mercado, a Spanish physician, Felix Plater and Severin Pineau, in the latter part of the sixteenth century and early part of the seventeenth, gave several clear descriptions of vesical fistula.

H. Van Roonhuysen, in 1663, was the first to propose closure of such fistulæ by suture. A. J. Joubert, of Paris, was the first operator systematically and successfully to take hold of this perplexing question.

In the simple cases he brought down the cervix of the uterus with forceps, pared the edges of the fistula, and accurately approximated them with interrupted sutures. When the fistula was so large as to prevent the approximation of its edges, he made lateral incisions, parallel with the edges of the fistula, to relieve the tension.

J. Marion Sims, in 1852, attained greater success than had before been acquired. He devised the duck-billed speculum, which exposed the fistula, with the patient lying in the semi-prone position. He denuded the margins of the fistula in a funnel form down to, but not through, the mucous membrane of the bladder, and approximated the edges of the wound accurately with silver wire.

Still many intractable cases remained, and in 1855 Simon attempted to close the vagina and make a common pouch for the urine, of the bladder and vagina. He cited eight indications for the operation as follows: First, an extensive loss of tissue, rendering it impossible to approximate the margins of the fistula. Second, inaccessible fistulæ. Third, destruction of the uterine cervix, bringing the peritoneum dangerously near the seat of operation. Fourth, severe hemorrhage into the bladder, after an operation. Fifth, incarceration of the cervix uteri in the bladder. Sixth, atresia of the vagina above the fistula. Seventh, atresia of the urethra with a fistula above and below it. Eighth, uretero-vaginal and uretero-uterovaginal fistula.

Kelly claims that not one of these reasons

¹ Guy's Hospital Report, 1892,
² Anat. Pathl., 3 liv.

¹ Read before the Maine Medical Association, June 7, 1905.

holds good to-day, with the advanced methods we have of overcoming such conditions.

Usually vesicovaginal fistulæ are caused by injuries done to the parts during difficult labor, as a result of the pressure of the child's head in a narrow pelvis. Many have supposed that the use of obstetric forceps has been a great cause of this trouble, but Kelly believes that this is erroneous, and that in a great many cases it is caused by too late use of the forceps.

Too prolonged pressure of the head impedes the circulation, and a slough is formed in consequence, with a resulting fistula. Other causes are stem pessaries, syphilis, cancer of the cervix uteri, perforation by a pistol ball, as described by Emmet; hematoma of the vaginal vault from coitus (afterward followed by a slough) and wounds caused during vaginal hysterectomies.

The tendency of a fistula, uninterfered with, is toward closure, but many of them, and the most of them, do not entirely close.

Sometimes a hole is left, not larger than a pin. This is sufficient to cause as much trouble as a larger fistula, and needs an operation just as much.

The symptoms produced by a vesicovaginal fistula, which is the kind we oftenest see, are as follows: Soon after the confinement, which has caused the trouble, there is difficulty in urinating, with symptoms of inflammation of the bladder; febrile symptoms set in, followed in a week or ten days by the escape of a slough.

After this the patient notices that the urine dribbles away from the vulva and down over the perineum, instead of passing out through the urethra by the act of micturition. The parts become excoriated, and the hairs upon the vulva, and sometimes the edges of the fistula, become encrusted with urine salts. Upon examining the vagina with a speculum, the fistula, if of large size, may readily be seen.

When the patient lies upon the back, sometimes the urine does not escape from the vulva, but gushes forth immediately, when she assumes an upright position.

If the fistula is very small and situated well up to the neck of the bladder, the patient, when first assuming an upright position, may be able to urinate in the natural way.

The history of a difficult labor, followed by fever, cystitis, bloody urine, escape of a slough from the vagina, and the patient complaining later that she is constantly bathed with urine, as very frequently she has no control over her urine, will lead the surgeon to look for fistula.

If, on speculum examination of the vagina, the exact point at which the fistula is located cannot be determined, on account of its small size, a little milk or aniline-colored water may be injected through the urethra, into the bladder. At the point of the fistula, this will readily be seen oozing through into the vagina.

Sometimes the aperture into the bladder will be large enough for the introduction of the finger

of the examiner, or may, at first visual inspection, be plainly seen, when, of course, the diagnosis is readily made.

When the physician first learns that a fistula exists, he should order the frequent use of mild boric or carbolic acid douches, and direct that they be kept up till the fistula heals spontaneously, or an operation is performed. Operation should not be delayed after contraction of the edges of the wound seems to have stopped, for no further hope of spontaneous closure should be entertained.

The old methods of retaining a catheter in the bladder for the purpose of keeping it empty, placing pledgets of cotton in the vagina to absorb the urine, or cauterizing the edges of the fistula with caustic or the Paquelin cautery, I believe to be a waste of time. I have tried some of these things a few times, but have always been disappointed.

Operation is the only scientific treatment, and holds out the best hope of recovery. The best time for operating is six or eight weeks after labor, when the parts are soft and yielding.

If the fistula, or any part of the vagina, presents raw granulating surfaces, they should be treated with nitrate of silver until they have healed. All encrusted salts should be removed, and if cicatricial bands of tissue have formed, which prevent the sides of the fistula from being brought together, they should be incised. If there is stenosis of the vaginal orifice, it may be divided with a knife, an incision being made down beside the rectum which will give sufficient room for the operator to work. This may be brought together again with sutures after the fistula has been repaired.

When about to operate upon one of these fistulæ, I prefer to have my patient in the lithotomy position. The parts are thoroughly sterilized, and it goes without saying that the hands of the operator, assistants and instruments are sterilized as well.

A Sims' speculum is then introduced and an assistant strongly retracts the posterior wall of the vagina and perineum. Two more assistants, one on each side, draw the sides of the vagina apart with retractors. The next step in the operation is to seize the cervix uteri with forceps, and draw it down strongly, thus bringing the fistula into better position for the radical operation.

Kelly advises seizing the wall of the vagina on each side with tenacula and holding it firmly, while the edges of the fistula are being pared. I prefer introducing into the bladder, through the urethra, a large staff, like a Hanks' uterine dilator, and elevating the outer end, thus pushing the bladder still farther into the vagina, and putting the vaginal wall on the stretch.

Here it is held steadily and firmly by an assistant, while a funnel-shaped denudation of the edges is being made, and sutures are being introduced. If the fistula should be very large,

tenaculum forceps may serve better to hold the edges of the fistula still.

I believe the funnel-shaped denudation of the edges of great importance, as a much larger surface for healing is exposed, and consequently a much better result likely to follow. The margins of the part to be denuded should be outlined with a knife before the beginning of the operation. A long pair of rat-toothed forceps, having about three fine teeth on each blade, should be used to grasp the tissue to be cut away, and a long, slender pair of sharp-pointed curved scissors used to pare the edges of the fistula. Care should be taken that the freshening of the surfaces to be brought together be thoroughly done, for, if a point be left where the scar-tissue is not cut away, union will not take place.

Silkworm gut makes the best sutures, as it absorbs nothing, and does not lacerate the tissues, either when being introduced or removed. The sutures should be introduced with a small needle, about three sixteenths of an inch from the margin of the denuded surface, carried down to, but not through, the mucous membrane of the bladder, and should be about a quarter of an inch apart.

Great care should be exercised not to involve the ureters or urethra in the sutures, if the fistula is situated near these important organs. The direction of the line of sutures should be such as will bring the edges of the fistula together, with the least amount of strain. It is better not to tie until all the sutures have been introduced, having them held out of the way by an assistant, so as not to interfere with the movements of the operator.

One eminent writer on the subject recommends, when a vesicovaginal fistula and a rectovaginal fistula exists at the same time, repairing the rectovaginal fistula first, giving as a reason that the rectovaginal fistula may infect the vesicovaginal one and spoil the operation on the bladder, if both are done at the same time.

Without wishing to be presumptuous, I feel that it is better to operate upon both at the same time. The constant dribbling of the urine over the rectovaginal fistula is, in my opinion, more likely to infect *it* than the operating on both at the same time is likely to endanger the operation on the bladder.

A few years ago I had a patient who had had one operation before coming to me, but without success. On examination I found she had two vesicovaginal fistulae, separated by an isthmus of tissue, each one being large enough to admit of the introduction of an instrument as large as a lead pencil. Besides these, she had a rectovaginal fistula fully half an inch long.

In this case I made one fistula of the two vesicovaginal fistulae, cutting out the tissue that separated them, closed *it* and the rectovaginal fistula at the same time. The result was a complete success.

Another little detail of which I wish to speak, which I believe to be of some importance, is the

dressings of the wound after it has been sutured. We all know how hard it is to keep wounds about the vagina and anus in an aseptic condition. To prevent sepsis following these operations, after I have tied the sutures, I thickly dust the wound over with iodoform and then seal the whole with collodion.

This will adhere to the wound and hermetically seal it long enough for nature to glue the edges together.

After this is dried, I place a pack of gauze in the vagina not too solidly, but a sufficient amount to make a support for the bladder during the straining of defecation, micturition, or coughing, thus taking off a part of the strain that is put upon the stitches. Some recommend that a retention catheter be placed in the bladder and kept there until union has been effected, but I prefer to have a soft rubber catheter, passed by a careful nurse every three hours, for the first eight or ten days, and after that at longer intervals.

The bowels should be kept quiet for five or six days, then moved with castor oil or sulphate of magnesia and an enema of warm soap suds.

The stitches should be left in place for two weeks, and great care should be exercised, while removing them, not to put any strain upon them.

After the stitches are removed, I again dust the wound and stitch-holes with iodoform, paint on another coat of collodion, and put in another pack of gauze. The collodion not only keeps out germs from the stitch-holes, but binds the parts together for a few days longer. After five or six days, when this has been removed, there is but slight evidence of any wound having existed, so far as scar tissue or stitch-holes are concerned.

I direct the patient during all this time to lie as quietly as possible, live on liquid diet, and after the stitches have been removed, keep the bowels in an easy condition, so as to avoid any straining at stool, which might tear apart the newly made union.

I had one case in which everything went along nicely for about two weeks, parts all dry both before and after the stitches were removed. Within a few days after the removal of the stitches she allowed her bowels to become very much constipated, and while straining to evacuate them, she burst the wound open, so that I had to take one or two more stitches. By this time she had learned the importance of keeping the bowels in an easy condition and had no further trouble.

Sometimes the fistula is so large that the edges cannot be approximated, and it is necessary to turn up a flap, dissected from the wall of the vagina, pare its edges accurately to fit the edges of the fistula, and suture it into place.

Another method is to dissect the bladder from the uterus, and bring it down with tenacula. The edges of the fistula are then sutured together, the bladder returned to its place, and the vaginal

vault sewn up. This procedure may also be practised in case of a uterovesicovaginal fistula.

In all these cases the essential points to be observed are cleanliness, clearly defined margins to the denuded surfaces, the accurate coaptation of the parts and subsequent proper care.

The value of not being discouraged, if by chance an operation does not succeed the first time, was illustrated by a case which fell into my hands some time ago. A vesicovaginal fistula of great size had followed a vaginal hysterectomy; it had been operated upon several times, resulting in a diminution of the size of the fistula, without obtaining a cure. I operated upon the patient, and for five days everything was all right. Unfortunately, the family was poor, and she was taken care of by her husband. Under the circumstances I feared for the result, and it justified my fears. I found, on visiting my patient one morning, that the wound was broken open. As near as I could find out, this result was due to passing a catheter several times, and at last leaving it in the bladder. The patient had quite a severe cystitis, and there was more or less pain each time the catheter was passed. The catheter used was metal, instead of soft rubber, as it should have been.

For this I blame myself, but I think the wound was opened by the catheter being passed in an unskilful manner, because the patient said she was hurt greatly during one of the attempts to draw her water.

She was much discouraged and would have nothing more done during a number of weeks. After a time, however, hearing of another case where I had been successful, she determined to try once more. This time I had her carried to the Sisters' Hospital in Lewiston, where I operated upon her, a complete cure being the result.

Instead of being a woman comparatively thin in flesh, shut out from all society, mortified every waking moment of her life, suffering much from cystitis and the excoriations of the vagina and surrounding parts, lacking tone and rich blood from loss of exercise, fresh air, and great discouragement, she is now enjoying the best of health, is in good flesh and able to enjoy any part of life which she was permitted to before she had the fistula.

Other forms of vesical fistula I have not touched upon, as they are very rare, and my time is too limited.

MEDICAL PROGRESS.

MEDICINE.

Sciatica and Its Treatment.—Whereas pain in the course of the sciatic nerve is common, WILLIAM M. LESZYNSKY (*Med. Rec.*, Sept. 9, 1905) is of the opinion that genuine sciatica is rare. Most of the cases assumed to be sciatic neuralgia are usually either a form of perineuritis or interstitial neuritis, and others are symptomatic of some extrinsic lesion. The commonest causes of sciatica are ex-

posure to cold, overfatigue of the lower extremities, pressure and injuries. In some instances it is probably a local manifestation of a general toxemia, though it is very rarely observed as a result of lead or mercury poisoning. Sciatic pain noted in gonorrheal urethritis is evidently a referred pain, but interstitial nephritis and epididymitis may prevent a casual relation. Anemia, chlorosis, hysteria, and neurasthenia have much less influence in its production than in other forms of neuralgic pain. For simplicity sciatica may be classified into two groups: First, cases developing rapidly, and second, cases developing slowly. The first group is usually the result of exposure, and the second is often due to pressure. The diagnosis should be carefully arrived at, eliminating other possibilities such as perineuritis, degenerative neuritis, pressure, lumbago and acute rheumatism. No pains should be spared to uncover the real cause, in order that the treatment may be directed accordingly. The patient must be kept at rest in bed, with or without fixation of the extremity, depending upon indication. Then a hot, wet pack is applied to the limb. The ice-bag, though not always serviceable, is of value in some cases. The lower bowel is cleared by enema, following which a hot saline irrigation, temperature 110° F., is given for thirty or forty minutes. Morphine or codeine may be necessary to quiet the pain. It is important to administer calomel or castor oil, since this both keeps the lower bowel free from accumulation and eliminates the toxic intestinal products. Opium should not be withheld, as the distress often produces a tendency toward despondency. There exists a diversity of opinion relative to the use of massage in acute cases. In many instances it has proved a valuable adjunct, but its efficacy depends largely upon the skill of the masseuse and the sensitiveness of the patient. As soon as practicable more active hydrotherapy should be instituted. In relieving pain the Paquelin cautery is often efficacious. By the end of the first week galvanism may be resorted to. This, however, is of more value in the mild, subacute or chronic cases. Mild cases may be treated by hot fomentations, massage, rectal irrigation and by salipyrin, aspirin or phenacetin. Subacute cases require a modified form of rest cure, massage with passive movements and systematic exercise, and hydrotherapy. In some chronic cases, static electricity in the form of sparks or the static induced current, or the foradic wire brush, have proved more or less of value as supplementary treatment. Blistering over the course of the nerve is also useful. Operative procedures are usually of no avail, but in long-standing cases an exploratory operation with incision of the nerve trunk and the freeing of any existing adhesions is advisable.

Kernig's Sign and Its Pathogenesis.—On the ground of anatomic physiological data, G. B. HASSIN (*Med. Rec.*, Sept. 9, 1905) offers an explanation of the pathogenesis of Kernig's sign. Flexion of the thigh upon the trunk and extension of the leg upon the thigh at the same time places the sciatic nerve upon the stretch, which is the first point to be considered. This in the healthy individual produces no pathological condition, unless the sciatic nerve be greatly stretched. However, in morbid processes involving the nerve itself or the nerve roots, the stretching produces a corresponding reaction; in the posterior roots, by pain, and in the anterior roots by contraction, which in the case of the sciatic

nerve involves the flexors of the leg. This sign is pathognomonic of meningeal inflammation.

Poisoning by Fungi.—The really poisonous species of fungi are comparatively rare. Text-books leave the impression that the active principle of all poisonous mushrooms is the alkaloid muscarin, the antidote for which is atropine. That certain fungi do contain muscarin is true, but these can hardly be mistaken for the common mushroom, even by the most careless. CHARLES B. PLOWRIGHT contends (*Brit. Med. Jour.*, Sept. 9, 1905) that the species which causes so many deaths owes its lethal power not to an alkaloid, but to a toxalbumin, phallin. This fungus is the *Amanita phalloides*. Eighteen cases are tabulated, from which it is learned that the period which usually elapses between the ingestion of the fungus and the appearance of the first symptoms averages ten to twelve hours; the average period in which it proved fatal, seventy-two hours; the cases treated by atropine and belladonna proved fatal; half the cases were under twenty, and a third under ten years of age. The most commonly observed symptoms of phallin poisoning are vomiting not occurring for ten to twelve hours, diarrhea, pain in the abdomen, cramps of stomach and diaphragm, thirst, cold sweats, collapse, headache, delirium, suppression of urine, slight jaundice, subnormal temperature, and sometimes cramps in the limbs. Post-mortem changes are, absence of rigor mortis, hypostatic discoloration, inflammation of the gastrointestinal mucous membrane, localized ecchymoses of the liver, alimentary canal, pleura and lungs, enlarged solitary glands, fatty degeneration of the liver, fluidity of the blood and hyperemia of the meninges. The treatment consists in lavage, morphine for pain, potassium permanganate to decompose any phallin left in the stomach, and saline infusion. Patients treated by injection of artificial serum have recovered. The recognition of *Amanita phalloides* is easy. It is always white beneath the cap. The top, though frequently nearly white, is traced with yellowish-green, and the stem is bulbous.

Tuberculosis Treated with Dr. Marmorek's Serum.—From a series of five cases of tuberculosis treated with Dr. Marmorek's serum, HAROLD F. BASSANO deduces the following conclusions (*Lancet*, Sept. 9, 1905). The beneficial effects of the serum are most marked in the "surgical" forms of the disease. No objectionable features whatsoever follow the injections except those insignificant discomforts dependent on the introduction of the equine serum into the human body, which are not due to the specific antitoxin, such as local urticarial rash, tenderness at the site of injection and slight general malaise, all of which pass off in a few hours. Pyrexia is diminished, though the fall in temperature is sometimes preceded by an initial rise occurring within twelve hours, rarely exceeding 1° F. Pain in the "surgical" forms of the disease is almost invariably alleviated. In the case of tuberculous peritonitis great relief was constantly experienced within twenty-four hours after injection. In the case of hip-joint disease also this effect was well marked. The amount of sputum in pulmonary tuberculosis is rapidly diminished except that an initial increase takes place when the injections are commenced. In consequence of these results due to the arrested progress of the disease, the general health rapidly improves and the patient gains weight. The method of dosage now recommended by Dr. Marmorek is the injection of 5 c.c. every other day

for three weeks, followed by a clear three weeks' interval, after which injections are repeated. The site of injection is preferably the abdominal wall or thighs, and should be varied as much as possible.

Heart Disease in San Francisco.—W. F. CHENEY (*Journal A. M. A.*, August 26) has investigated the incidence of heart disease, as shown by the medical clinics of Cooper Medical College, and the post-mortem records of Dr. William Ophüls. Only organic disease was estimated and the diagnoses were made with special care. The percentage of the clinical diagnoses of heart disease was 3.7 per cent., while that of post-mortems was much larger, 9 per cent. The discrepancy is explainable in several different ways. Mild cases are often unrecognized by the patients as ailments, and they come to the post-mortem table from other reasons. The clinical records also include all ambulatory cases. In many actual cases of heart disease, the symptoms were too dubious for positive recognition of the conditions. The patients were nearly all of the working class. He concludes that heart disease is comparatively frequent in San Francisco, as in all other large cities. Among valvular troubles the most frequent form found was mitral regurgitation; aortic regurgitation is second, mitral stenosis third, and aortic stenosis last—undoubtedly a rare affection. Myocardial disease was found frequently. Its causes are supposed to be those of arteriosclerosis, and the latter condition is even more frequent than the myocarditis.

PHYSIOLOGY.

The Chemical Correlations Involving Growth of Organs.—The fourth and last of the Croonian Lectures by E. H. STARLING (*Lancet*, Aug. 26, 1905) states that the best method of producing hypertrophy of an organ is by increase of its physiological activity. If a healthy animal is injected with a pure preparation of secretin and this stimulus is continued for some time, besides exciting the pancreas to secretory activity, it calls forth a corresponding building up of protoplasm and secretory granules. The thyroid gland presents the most familiar example of a chemical correlation evoking the building up of tissue, as is evidenced in the administration of it in cretinism. The largest group of correlations between the activity of one organ and the growth of others is formed by those widespread influences exercised by the generative organs on the body as a whole, and on the parts of the body. The effect of the removal of these organs of both sexes on the growth and disposition of the individual has been known for centuries. Recent confirmatory experiments demonstrate that the ovaries and organs provide an internal secretion elaborated by the follicular epithelial cells or by the interstitial cells of the stroma, which, circulating in the blood, induces menstruation and heat. A still more striking example of growth in response to chemical stimulation from distance organs is afforded by the mammary gland. At birth these glands are limited to a few ducts. At puberty in the human female there is some gland growth; the main increase, however, being due to fat, but with the occurrence of pregnancy a true hypertrophy of the gland begins at once and continues steadily up to birth. These facts demonstrate the intimate connection between the growth and activity of the gland and the growth of the fetus in utero. It was formerly believed that the connection between the gland and the uterus was a nervous one, but recent research has presented striking evidence that the

nexus in question is a chemical one, though opinions differ widely as to the seat of formation or origin of the chemical stimulus. In a preliminary series of experiments rabbits were injected every day for a fortnight, some with an emulsion prepared by grinding up ovaries of pregnant rabbits, and others with a similar emulsion prepared from the placenta and uterine mucous membranes, but without effect on the mammary glands. Finally rabbits were injected with an extract of fetuses, which after a varying length of time invariably produced hypertrophy and secretion in both nulliparous and multiparous animals. Similarly the extract of pregnant ovaries has been shown to produce some enlargement and congestion of the uterus. The question arises whether the hypertrophy and the subsequent secretory activity of the gland can be due to one and the same hormon. The evidence indicates that such is the case. During the whole of pregnancy the mammary gland is receiving a continual inhibitory or assimilative stimulus from the source mentioned, the result being a true hypertrophy of the gland. As soon as parturition occurs the source of the inhibitory stimulus is removed, the cells, built up to a high grade of activity, begin to break down, resulting in the production of milk.

Hemolytic and Hemosozic Serums.—MARC ARMAND RUFFER and M. CRENDIROPOULO publish some experiments (*Brit. Med. Jour.*, Sept. 9, 1905), from which they conclude as follows: (1) That bile contains at least two hemolysins or groups of hemolysins; (a) biliary hemolysin No. 1, insoluble in alcohol, which produces a hemosozic serum when injected into rabbits; and (b) biliary hemolysin No. 2, which produces no hemosozic serum when injected. (2) Bile contains a hemosozic precipitate which, when injected into rabbits, produces a hemolytic serum. (3) The hemosozic precipitate added to bile never prevents completely the hemolysis produced by bile. (4) The hemosozic precipitate neutralizes the hemolysin insoluble in alcohol, but not the hemolysins soluble in alcohol. (5) The hemosozic precipitate prevents the hemolytic action of a serum produced by the injection of bile. These experiments seem to throw light on some of the facts observed concerning the serums of animals injected with lower micro-organisms or their products. A culture most probably contains, like bile, substances antagonistic to one another; in consequence, the serum of an animal injected may contain several new substances. Some may inhibit or predispose to infection, some may neutralize and some increase the effect of bacterial poisons; some, again, may have no specific action whatever. Such a hypothesis may account for the impossibility of increasing the antitoxic power of certain specific serums, or of obtaining a serum neutralizing more than the minimum fatal dose of certain pathogenic bacteria.

Effects of Ether Anesthesia on Renal Activity.—The following investigations were undertaken by HAROLD PRINGLE, CHARLES B. MAUNSELL and SETON PRINGLE (*Brit. Med. Jour.*, Sept. 9, 1905) to determine clinically the influence of ether anesthesia on the secretion of urine, both as regards its quantity and its nitrogenous content. The method adopted was to take periods before, during and after anesthesia, as follows: (1) Twenty-four hours ending 9 A.M. on the morning of operation; (2) from 9 A.M. until immediately preceding the anesthesia; (3) during the induction of anesthesia; (4) first half-hour of complete anesthesia; (5) second half-hour;

(6) third half-hour; (7) six hours following anesthesia; (8) twenty-four hours following period 7. The bladder was emptied by catheter at the end of each period. The total nitrogen was estimated by Kjeldahl's method. The amount of urine, showing the rate of secretion in cubic centimeters per half-hour for the several periods averaged 24, 28, 42.2, 58.73, 5.56, 2.95, 0.6, 15.2 and 8.82 respectively. The total nitrogen, showing rate of excretion in grams per half-hour for the several periods averaged 0.206, 0.271, 0.045, 0.022, 0.005, 0.132 and 0.166 respectively. In reviewing the foregoing results it is seen that during the time of full anesthesia not only is the amount of urine reduced, but the excretion of nitrogen constituents is diminished to such an extent as to amount to practical suppression, and this condition of renal inactivity seems to increase the longer the anesthetic is continued. This inhibition of renal activity must exercise a most injurious effect on the general metabolism and condition of the patient.

Chemical Reflexes of the Alimentary Tract.—The title mentioned is the subject of the second of the Croonian Lectures delivered by E. H. STARLING (*Lancet*, Aug. 12, 1905) on "The Chemical Correlation of the Functions of the Body." After referring to the digestive mechanism of the lower animals he traces briefly the physiological experiments from which the theory that digestion was accomplished purely by nervous reflexes was deduced. Since physiologists failed to obtain invariable results from nerve stimulation the work was pursued further, and it was found that the introduction of acid into the duodenum evoked a reflex flow of pancreatic juice, even after division of the vagi and splanchnics or complete destruction of the spinal cord. This was first considered to be a peripheral reflex, but by further experimentation it was demonstrated to be absolutely independent of any nervous channels whatsoever, and was in reality a chemical reflex. The entry of acid into the duodenum causes the production in the mucous membrane of a chemical substance called pancreatic secretin. This is rapidly absorbed into the blood and travels to the gland, the cells of which it excites to secrete. When obtained from one animal and injected into another it will cause a secretion of pancreatic juice. Secretin is a substance of the same general distribution as adrenalin, is unaltered by boiling, soluble in alcohol and more or less diffusible. It is suggested that the formation of secretin by acid is a hydrolytic process acting on a pro-secretin substance to be found in the epithelium of the upper small intestines, but this body has not been isolated.

The Presence of Lithium in the Body.—That lithium is a normal constituent of human organs, and that it is also present during embryonic life, is the conclusion drawn by E. HERRMANN (*Pflüger's Archiv*, July 19, 1905). The topographical distribution of this substance has not yet been decided. The lungs contain a larger amount than any other organs, even in the embryo. There is no satisfactory explanation of this excess. The relations of lithium appear to be the same as those of magnesium. Whether the absence of lithium in any organ, as the liver, has any pathological significance has not yet been decided.

Experiments on Brain Replantation.—The extremely delicate texture and liability of the tissues of the central nervous system have precluded any attempt at transplanting or replanting these tissues

after they have been exsected. G. SALTUKOW (*Archiv f. Psych. und Nervenkr.*, Vol. 40, No. 2), however, undertook an investigation of the possibility of replanting a portion of the brain in its former site after it has been cut out, with surprising results. He experimented on young rabbits. He cut out a conical portion from the frontal lobe of the cerebrum, and returned it to its place. He performed this operation on a series of 20 rabbits, and afterward killed one at a time at stated periods varying from a few days to almost a year. He found that the replanted portion retained its vitality as much as eight days after the performance of the operation. In all cases, however, death of the ganglion cells occurred sooner or later. The neuroglia cells survived a longer time. Before death of the cells active mitotic changes were noted in them. At a later time regenerating nerve fibers were observed in the portions of brain bordering on the wounded area.

Silver Reaction in Animal and Vegetable Tissues.

—The relation of the chlorides to the activity of the cells is still veiled in obscurity. A determination of this relation is of considerable importance, since an excess of chlorides is now recognized clinically as a pathological manifestation. A way toward clearing up this obscurity is opened up by A. B. MACALUM (*Proc. Royal Soc.*, June 28, 1905), who points to the familiar silver reaction of the tissues (the blackening produced by nitrate of silver), as a means of determining the distribution and the relative quantity of the tissue chlorides. He finds that intracellular material and structures, including the so-called cement substance of Von Recklinghausen, are rich in chlorides, and that normal nuclei of animal and vegetable cells are absolutely free from them. It would appear from the latter fact that the chlorides do not take any important part in the directive energies of the cell, since these have their seat in the nucleus.

The Chemical Mechanism of Gastric Secretion.

—The tendency of modern investigation on the forces that regulate the various secretory mechanisms of the digestive tract is to attribute a longer sphere to the chemical aspect of regulation than to the nervous nodes of secretory excitation. The work of J. S. EDKINS (*Proc. Royal Soc.*, Aug. 3, 1905) is in line with that of Pawlow, Starling and others, who have shown the beautiful connection between the secretory process of the pancreas and certain substances found in the mucous membrane of the small intestine. This "secretin," which is normally found in the latter, and may be obtained in extracts of it when injected into the blood stream of the animal, excites the flow of pancreatic juice. The author sought to investigate the possibility of the existence of a similar form of chemical regulation in the case of the gastric secretion. With this in view he made extracts of the mucous membrane of different portions of the stomach and injected them into the jugular vein of the dog. The extracts were made with solutions of dextrin. He found that the mucous membrane in the pyloric region only contains a substance which when thus injected excites the flow of gastric juice.

THERAPEUTICS.

Treatment of Pityriasis Versicolor.—P. GALLOIS, at the Société de Thérapeutique de Paris, warmly recommended the use of oxygen water for the treatment of pityriasis versicolor, especially for cases which are spreading. Hydroxyl is not only a very good disinfect-

ant, but is also a decolorizing agent. It is spread over the parts affected with a saturated pledget of wool. After ten days to a fortnight of this treatment, even the most extensive cases were completely healed, and remained without relapse for over two years. Latterly he has added borax 3i to ʒviii of H_2O_2 (in 12 volume per cent. solution) and obtains even quicker results.

Amyl Nitrite in Hemoptysis.—M. J. ROUGET reports (*Bulletins et Mémoires de la Soc. Méd.*) good results obtained by adopting Francis Hare's suggestion for the use of amyl nitrite inhalations in hemoptysis. The first case in which he tried it was one of a severe and obstinate character, which had resisted all the usual methods of treatment: Rest, cold, morphine, ergotin, dry cupping, ice-bag, etc. The first inhalation (10 drops) greatly diminished the bleeding, and a second dose stopped it completely. After this the patient kept the remedy at hand, and was able to avert fresh attacks, which he could always predict, from the arrival of a certain taste in the mouth. Nine other cases showed equally good results. The effect is due to the toxilogical properties of the drug, which lowers the blood-pressure and produces vasomotor dilatation in the peripheral vessels. Filehne has proved that the capillaries in the lung are exempt from the latter effect.

A Safety X-Ray Tube.—Since the introduction of the X-ray as a therapeutic measure serious injury to patients and physicians have resulted after a short or long period of application. To obviate these dangers and to secure a tube which would not be cumbersome, H. G. PIFFARD (*N. Y. Med. Jour. and Phila. Med. Jour.*, July 15, 1905) details the advantages of two tubes which he had constructed, one by an English, and one by an American maker. Illustrations of the two tubes are given. They are perfectly satisfactory in every way, and the author considers them perfectly safe for clinical purposes, so far as the operator is concerned.

Oil in Stomach Diseases.—Pure oil has a very favorable influence upon excessive formation of acid in the stomach; it relieves spasm and pain and possesses a high nutritive value. F. MERKEL (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) first washes out the stomach, then pours pure olive oil into the stomach through the tube, or else instructs the patient to take it by mouth twenty to thirty minutes before meals in quantities of a tablespoonful. Excellent results were obtained in pyloric stenosis with hyperacidity after ulcer, chronic ulcer with hyperacidity, and hyperacidity with pyrosis.

Treatment of Exudative Pleurisy Complicating Tuberculosis.—H. DÖRFLER (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) has seen remarkable improvement set in in cases of pulmonary tuberculosis, if an exudate developed in the pleura, and this exudate was removed by means of thoracocentesis. The curative influence of this operation is best explained as follows: After the exudate has formed the affected lung is much compressed, and consequently rendered anemic. As soon as the fluid is withdrawn, an intense hyperemia sets in, which has the same influence upon tuberculous processes in the lung that Bier's constriction has upon tuberculosis of the joints. Since the large majority of cases of pleuritis are tuberculous, it follows that thoracocentesis is indicated in almost all. Possibly many cases of pulmonary tuberculosis will be favorably affected if an exudate is brought about artificially and then removed.

Serum Therapy in Erysipelas.—As an addition to the former series reported, JAMES C. AYERS publishes observations (*Med. Rec.*, Aug. 26, 1905) upon thirty-three cases of erysipelas treated by antistreptococcus

serum. Only those patients who were admitted to the hospital on or prior to the third day of the disease received serum treatment. The average dose of serum administered was 20 c.c., given in one or two doses. The results showed that desquamation began on an average of 3.6 after the first dose; that the initial leucocytosis averaged 17,540, whereas on the day of desquamation the counts showed an average of only 8,500; that, though aluminuria was present in 40 per cent., over one-half cleared up by the second day after receiving the serum; and that the average duration of the disease was 6.8 days, as against 7.6 days in the previous series of fifteen cases, and 9.4 days in a series of seventy-nine cases treated by the older methods. The mortality was 9.9 per cent. The shortening of the average duration of the disease by 2.6 days about expresses the value of this form of treatment.

Treatment of Hemoptysis.—There are three forms of hemoptysis pertaining to tuberculosis, depending on the stages of the disease, according to G. LEMOINE (*Jour. de Méd.*, Aug. 13, 1905). They are: (1) The premonitory form, appearing before the local signs are manifest. (2) The form associated with congestion, accompanied by signs of incipient tuberculosis. (3) The hemoptysis belonging to the period of cavity formation and ulceration. Treatment of the first form: Absolute rest in bed; avoidance of speech; administration of ergotin, either by mouth or hypodermically; local applications of mustard plaster night and morning; a daily pill of aloes, .10 to .15 grams; hot footbaths night and morning; iced drinks, particularly lemonade. The treatment of the second form, besides that of the tuberculous process itself, is the same as that of the first. The treatment of the third form differs according to whether fever is present or not. In the former case, the management is the same as in the premonitory form. The patient should be in a cool, airy room, in a semirecumbent position; he should rest as quietly as possible. Dry cups or sinapisms may be used. He should get a hypodermic injection of Tanret's ergotin, one-half to one milligram, or of adrenalin, one-half a milligram, daily. Ergotin and adrenalin act only on blood-vessels supplied with muscular tissue; but the capillaries of the lung are almost entirely deficient in this. In this case the various emetics are preferable. According to Trousseau, they have a remarkable hemostatic effect. One may prescribe the following:

℞ Pulvis ipecac..... 3.00 grams
Syrup ipecac..... }
Syrup Diacode (Papaveris) } aa 30.00 grams

M. et S. One to two teaspoonfuls every three hours until nausea is produced. Stop immediately if vomiting occurs. Continue this treatment for one or two days. If the case gets worse, or the fever increases, substitute tartar emetic for the ipecac.

Effects of Adrealin on Animals.—Some extremely interesting experiments on the production of aneurisms in rabbits by the intravenous injection of adrenalin are reported by E. SCHEIDEMANTEL (*Virchow's Archiv*, Vol. 181, No. 2). The animals had been treated from several days to several months, and the initial dose was three minims, increased gradually to ten. Occasionally death set in shortly after an injection, with symptoms of embolism, but in the majority of cases the injections were well borne. Later, respiratory symptoms developed, and at autopsy, bronchopneumonic processes were detected, probably secondary to infarction from the thrombosed ear-veins. In almost all instances advanced changes were present in the aorta. In the thoracic portion, the walls were much thickened and rigid, and on close inspection numerous plaques of calcareous deposit

were seen. The intima was always free from thrombi, showing that this layer was not the seat of the lesion. The changes were usually so advanced that veritable aneurisms had formed, particularly at the beginning and the arch of the aorta. Microscopically, the elastic fibers were found torn and the muscular fibers degenerated. All the changes occurred in the media, and the intima did not even show a proliferation of the endothelial cells. The fact that adrenalin is able to set up a cirrhosis in the liver, could not be corroborated by the author. With the exception of infarction of the lungs and occasionally necrotic foci in the liver, no other changes could be detected. The arterial lesions are in no way allied to those of human arteriosclerosis, since in the latter the intima is chiefly involved. The pathogenesis of the condition is best explained as follows: Adrenalin causes an intense spasm of the smaller vessels, which is followed by an undue dilatation of the beginning of the aorta. The elastic fibers here will stretch and eventually tear and undergo degeneration with secondary deposit of lime salts. It is very questionable if a toxic action of adrenalin plays any part. In those animals which had been treated the longest, aneurisms were not found, but instead, a uniform, diffuse thickening of the greater part of the aorta. It is thus possible that the lime may eventually be absorbed and make way for connective tissue.

Static Electrical Treatment of Neurasthenia.—Inasmuch as the clinical types of neurasthenia are purely arbitrary, having for their basis a preponderance of symptoms referable to the cerebral, spinal, or sexual apparatus, the static treatment should be viewed through the morbid processes as we know them. R. W. MILLER (*Virginia Medical Semi-Monthly*, June 9, 1905) gives a brief outline of the rationale of treatment as practised. Neurasthenia results primarily from an impaired metabolism which induces nerve weakness and nerve irritability. From these we might expect anemia, indigestion, precordial pain, irregular action of the heart, in short, disorganized conditions of the secretory and excretory organs associated with hysteria and hypochondriasis. Scarcely any treatment will meet as many of these symptoms as static electricity: (1) It controls local congestion; (2) it relieves pain; (3) it quiets irritated nerves; (4) it grants peaceful and natural sleep; (5) it favors general functional activity. In brief, it is a counter-irritant, sedative, hypnotic, narcotic and general tonic. For general treatment, the wave-current is generally employed. The patient is placed upon an insulated platform, the negative pole grounded, and the positive pole, terminating in a zinc plate, or tinsel braid, is bound upon the bare skin of the patient, the point selected being dependent upon the part giving the most expressive symptoms. The machine is then started and the spark-gap opened from one to four inches; this treatment is continued twenty to thirty minutes daily. As a result we find: (1) Metabolism stimulated. (2) Improved nutritive processes. (3) Elimination of objectionable accumulations. (4) Sleep. (5) Increase of weight. After five or six treatments the function of the sweat glands is re-established. Where insomnia persists, two treatments may be given each day. An unsatisfactory peripheral circulation may be relieved by the application of friction sparks. The undulatory current may be used in conditions of bowel atony and of sexual neurasthenia. "Lastly, but not least, great psychic impressions are made by the wise look and curious machine upon the hysterical and hypochondriacs. To the layman, electricity is a by-word—a joke; but a fair investigation will undoubtedly convince the most skeptical."

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No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, Including postage in U. S. and Canada.

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SATURDAY, OCTOBER 7, 1905.

A NEW FEATURE FOR SOCIETY MEETINGS.

At the meeting of the Pennsylvania State Medical Society, which took place at Scranton on Tuesday, Wednesday and Thursday of last week, there was announced on the program what was called a new departure with regard to one of the evening entertainments provided for the attending members, which seems worth while calling to special attention. Perhaps the least satisfactory feature about it was its name, it was called "A Conversazione." It consisted, however, of a number of very interesting features. Besides a general reception, with music followed by dancing, and a supper which for at least an hour absorbed the attention of all those present, there was a series of intellectual treats provided in the large building of the International Correspondence School, that could scarcely fail to arouse interest in those who do any reading aside from strictly medical science, in their ordinary avocations.

A member of the teaching staff from Columbia University, New York, Dr. Kellicott, was present to discuss the interesting subject of Mimicry and Protective Coloration and to illustrate it by means of lantern slides. There are phases of this subject, though quite apart from medicine, that can scarcely fail to catch the

attention of physicians because it involves so many of the principles on which that intricate and often pathological process of cutaneous pigmentation is founded. In another room there was a demonstration of the workings of an electrical engine which represents very probably the acme of perfection in electric machinery up to the present time. In still another room there was a demonstration of radium and especially of its beautiful qualities as manifested in the radioscope.

Other interesting features on the program were a lecture by Dr. George T. Moore, of the Department of Agriculture, who discussed the subject of the inoculation of the soil with various forms of nitro bacteria in order to secure its enrichment. This demonstration of the profitable effect of microbes served an excellent purpose in making physicians realize that the little germs which by chance produce certain diseases in human beings are only accidentally pathologic, but that most of them represent beneficent forces of the highest kind in natural history.

An excellent feature was a lecture by Mr. Albert Kelcey, of Philadelphia, the architect and landscape gardener who was the designer of the model city at the St. Louis Fair. Physicians are interested in the city beautiful, no matter where they may live, not alone because life is more livable where cities are beautified, but because their beautification always means the leaving of open spaces, "the lungs of the city," as they have been so appropriately called, which enable the inhabitants to get so much better air than would otherwise be possible. Physicians need to keep in touch with the advances that are being made in this line, and the influence that they possess can be used to no better purpose than in securing improvements of present conditions and pointing out how much of benefit to health as well as pleasure of mind, will accrue from this new progress in city life.

Among some of the other attractions that were announced for the occasion was a demonstration of the mercury tube light invented by Mr. Cooper Hewitt, of New York, the explanation of the process of mining coal, with illustrations of its dangers, by means of stereopticon views, and a talk by the distinguished traveler and war correspondent, Dr. Dwight L. Elmendorf, of New York. It is easy to understand that these represent an evening's occupation thoroughly worthy of intellectual men and at the same time such as was sure to afford not only amusement and

entertainment, but also instruction. In recent years it has sometimes been the custom to have vaudeville performances instead of the usual after-dinner speeches, at the annual banquet of medical societies. It is true that anything that would replace ordinarily deadly monotony of after-dinner speaking might be welcome. Vaudeville, however, has not proved able to fill the bill satisfactorily, and has sometimes been a source of no little severe criticism, because of lapses into bad taste on the part of hired performers.

A series of interesting talks and demonstrations, such as was provided by the Scranton committee of arrangements for the Pennsylvania State Medical Society is almost sure to be a source of the most pleasant memories. Such entertainments, if given over a series of years, would be of the greatest educational value, and might be so arranged as to prove eminently suggestive for certain of the borderland sciences that are closely related to medicine, and that though they may not have practical applications in medical practice, still afford explanations of great medical principles and illustrations of medical borrowings from related sciences such as cannot be readily obtained in any other way by the busy practitioner. They would be interesting not alone to the practitioner from the country, but also to the city brethren, who are often curious to know about recent advances in science and yet have little or no opportunity to take advantage of the chances for learning about them that may be presented in ordinary public lecture courses.

ARTIFICIAL BIOGENESIS: A STEP FORWARD.

THE future historian will probably record the early years of the twentieth century as the age of revival of ancient scientific beliefs. If Ernest Rénan lived to-day, he would no doubt speak of this period as he said of the nineteenth century, that it was taking out of the waste-basket many things that the previous century had cast into it. Chemistry no longer derides the fond dreams of the alchemist, and the transmutation of elements is now considered more than a remote possibility. The bit of radium that continually evolves heat without losing in bulk or weight has rudely shaken the faith of the physicist in the law of the conservation of energy. The physiologist has caught the contagion of skepticism, and with iconoclastic zeal he is now try-

ing to drag into the dust one of the most fundamental teachings of modern biology. The conception of spontaneous generation, which for nearly two thousand years was kept alive by the authority of Aristotle, and which was apparently shattered by the simple experiments of a long line of investigators, beginning in 1660 with Redi and ending in 1862 with Pasteur, has again asserted itself.

In the presidential address to the British Association for the Advancement of Science, in 1870, Huxley said: "With organic chemistry, molecular physics, and physiology yet in their infancy, and every day making prodigious strides, I think it would be the height of presumption for any man to say that the conditions under which matter assumes the properties we call 'vital' may not, some day, be artificially brought about." Has that day arrived? The announcement recently heralded in the press, of the artificial production of living organisms by Prof. J. Butler Burke of the Cavendish Laboratory of Cambridge University, at first appeared to be one of the products of that sensational journalism which is ever ready to distort the modest statements of the scientific discoverer. But the paper written by Prof. Burke in the *Fortnightly Review* for September has corroborated the earlier statements of his remarkable results. Dealing with supposed organisms which resemble at least, even if they are not closely related to the bacteria, Burke's discovery of the "radiobes" has already awakened the keen interest of the medical world.

These bodies were produced as the result of the exposure of bouillon to the emanations of radium. A small sealed tube containing $2\frac{1}{2}$ milligrams of radium bromide was placed on the surface of bouillon contained in a test tube, which was then kept at a temperature of 130° C. for thirty minutes. At the end of twenty-four hours there appeared on the surface of the bouillon what looked like a bacterial culture. Examined by means of the $\frac{1}{12}$ inch objective, this was found to consist of structures closely resembling diplococci, varying in size from 3 microns to mere specks. They also look like crystals of calcium carbonate, but differ from the latter in being much smaller and soluble in warm water. Examined with the polariscope, they do not give the figures and changes of color which are characteristic of crystals, but the bouillon in which they are produced causes a left-handed

rotation of the plane of light. These bodies display unmistakable phenomena of growth, and have evidently developed from ultramicroscopic particles. When they exceed 3 microns in size there is a tendency for them to divide, each resulting part thereafter leading a separate existence.

The "radiobes," as these microscopic bodies have been termed, after six or seven days develop nuclei. A little later they stop growing and begin to segregate and multiply. By this mere fact of growth they are not to be differentiated from crystals; indeed in both cases there is a distinct limitation to the size which the particles may ultimately assume. But crystals, unlike the radiobes, do not "show the cyclic process, pass into higher forms and they decay, which is the test and guarantee of life." Crystals grow by accretion, while the radiobes grow by intussusception or assimilation. The latter exhibit a growth "from the minutest visible speck to two dots, then a dumb-bell shaped appearance, later more like frog's spawn, and so on through various stages until it reaches a shape largely different from its previous forms, when it divides and loses its individuality into minute crystals, possibly of uric acid."

The discovery of the radiobes was not a mere accident, but was the culmination of a long series of investigations on various phases of radio-activity. The mysterious emanations given off by radium afforded a new force with which to rearrange the molecular groupings of various organic substances.

The various steps that led up to the discovery of the radiobes may best be described in Prof. Burke's own words: "In the course of my previous work on phosphorescence I was induced to try whether the molecular groupings which, it was supposed, were formed during phosphorescence, by exciting sources, could also be produced in other organic bodies, whether they became luminous or not, so long as they are similarly acted upon. The first attempt was to bring about the condensation or formation of a complex aggregate round a nucleus, itself the seat of electromagnetic disturbances, as in radio-active particles, that might set up an aggregation of molecules, probably of an unstable kind, in its vicinity." With this end in view the author added some radium salt to a tube of glycerin, which was then immersed in liquid air. Crystals of glycerin were thus produced, but it was

afterward found that liquid air without the radium could accomplish this result. This was also obtained in the case of gelatine. The author next devoted his attention to bouillon, "which was carefully sterilized under pressure at a temperature of 130° to 140° C. with radium for thirty minutes at a time. Two days later a culture was growing on the surface of the gelatine. Moreover, on repeating the experiment it was observed that the culture was still formed even when the tube was not frozen."

One of the most remarkable results in this series of investigations was the ability to get subcultures by inoculation in fresh media: "The subcultures did not show the slightest signs of growth for nearly six weeks. They then, however, did manifest a tendency toward development, but only to a very small extent." The last fact forms the basis of the conclusion that the radiobes are not bacteria.

The latter, simple as they appear, have nevertheless a remote ancestry, and it is suggested that the radiobes represent the distant stock from which the bacteria have sprung. It is quite natural, then, that these lowly forms of life, which in the course of countless ages have been profoundly modified by an ever-changing environment, should differ so markedly from the radiobes. Neither crystals nor bacteria, the radiobes are supposed to be molecular aggregations of a high degree of instability, which may have been produced, when the world was young, by the same forces which have now become the wand of the modern scientific wizard.

That at some time in the history of the world, life sprang spontaneously into being out of inorganic matter, is one of the tenets of the modern doctrine of evolution. Herbert Spencer believed that the formation of organic matter and the evolution of life in its lowest forms "took place at a time when the heat of the earth's surface was falling through ranges of temperature at which the higher organic compounds are unstable." Protogenesis connotes this conception of the origin of life in the remote infancy of the world, a conception which has universally established itself in the minds of biologists. Yet most of these deny the possibility of a similar origin of life at the present day. Quoting a writer in the *New International Encyclopedia*, "the origin of protoplasm was probably the result of a combination of circumstances which certainly never occurred before in the history of

our planet, and which has never happened since. The phenomenon of protogenesis, after taking place once for all, could never have again occurred. Such is the nature of cell-division, of sexual reproduction, of growth, and of heredity, that it would be contrary to the course of nature to suppose that it was ever afterward necessary for it to again occur. After protoplasm appeared, the earth and ocean probably became too cool to supply a sufficiently high temperature, or chemical compounds of the right degree of stability to form protoplasm."

This statement illustrates that severe dogmatism which has ever been an obstacle to scientific progress. If now one weigh the observation of Burke, "that the products of radio-active bodies manifest not merely instability and decay but growth, subdivision, reproduction and adjustment of their internal functions to their surroundings, a circumstance which I think will be found equivalent to nutrition, the conclusion is irresistible that there may be, after all, some means of effecting artificially those molecular redistributions which are necessary in biogenesis."

It would be premature to decide that the radiobes are living organisms, in spite of the fact that they exhibit all the essential vital phenomena. The criticism might be legitimately urged that there have been many successful attempts to create combinations closely simulating the activities of protoplasm.

One of the earliest of these was made by Bütschli, who produced artificial emulsions which showed a microscopic structure almost identical with that of protoplasm. He also showed that drops of oil-emulsions suspended in water exhibit ameboid changes of form. The experiment of Quincke has become classic. He suspended in water a drop of almond oil and chloroform, and then by means of a capillary tube caused a drop of a two per cent. solution of sodium carbonate to approach the globule. The latter began to exhibit movements strikingly similar to those of amebæ. It was shown that these movements are due to the diffuse formation of a soap on the surface of the suspended globule.

The latest of these attempts has been made by Stephane Leduc (*Comptes Rendus de L'Acad. des Sciences*, July 24, 1905), who succeeded in producing an artificial cell exhibiting the phenomena of growth and germination. In a solu-

tion of copper sulphate he suspended a drop of saccharose solution, containing a trace of ferrocyanide of potassium. The drop was soon surrounded by a thin membrane of ferrocyanide of copper. This membrane was permeable to water but not to sugar. The result was that the drop imbibed water and increased in size. It was also seen to put out prolongations, similar to the pseudopodia of amebæ. As soon as the surface tension of the drop exceeded the internal cohesion, self-division occurred, and each resulting half, surrounded by a new pellicle of ferrocyanide of copper, began to increase in size and then subdivide like its parent-drop.

These experiments merely show that vital phenomena may be closely imitated, but do not shed any light on the question of the plausibility of Prof. Burke's claim that he has caused the artificial production of living organisms. His results are certainly more startling than any that have hitherto been obtained in this field. It is interesting to note that R. Dubois, of Lyons, has recently observed bodies similar to the radiobes, to which he gave the name "vacuolides."

An ingenious explanation of the possible physical character of the radiobes has recently been advanced by Sir William Ramsay (*The Independent*, Sept. 7, 1905). Since radium has the power of decomposing water into its constituent elements, it is quite probable that when particles of radium bromide are brought into contact with the nutrient broth, part of the water contained in the latter is decomposed, and the resulting gases are immediately surrounded by a thin membrane formed by the coagulation of the albumin. This coagulation is caused by the radium emanations which are mixed with the gases. These gaseous globules therefore constitute the radiobes. The emanations contained in them effect a further decomposition of the water that osmose through the albuminous coat of the globules, and the result is a swelling of the latter. At a certain stage the albuminous coating breaks, and the gases escape, to be in turn surrounded by a thin layer of albumin. This accounts for the budding forms and for those that exhibit the manifestation of cell-division. The emanations which may persist in the globules for a thousand years thus account for the formation, growth, budding and fission of the radiobes. These reflections have not yet been experimentally verified by their author.

The important work of Prof. Jacques Loeb

and his pupils on the artificial fertilization of the egg, has been incorrectly hailed by the sensational press as the actual artificial production of living organisms. Even superficial acquaintance with the terminology of the science of life would have prevented this gross misconception. Yet, in spite of the utter disparity between the investigations of Burke and Loeb, the work of the latter serves to shed considerable light upon the researches of the former. It has at least been shown that the cellular changes that succeed the entrance of the spermatozoon may be similarly produced by artificial means. Martin H. Fischer and W. Ostwald (*Pflüger's Archiv*, Feb. 1, 1905) have indicated that the process of fertilization is purely a physicochemical phenomenon. They found that a few minutes after the head and neck of the spermatozoon have penetrated the ovum, a light spot appears in its neighborhood, from which the protoplasmic granules arrange themselves in radial lines. This phenomenon of radiation is known as the astrosphere, and takes place in the various cases of natural and artificial parthenogenesis. The authors found that all those agents that transform hydrosols (the soluble state of colloids) into hydrogels (the insoluble state) are capable of bringing about fertilization of the egg. Natural as well as artificial fertilization thus consists in the formation of an astrosphere by means of a transformation of hydrosols in the protoplasm into hydrogels.

That the process of fertilization, which has been regarded as belonging peculiarly to the domain of vital phenomena, should now be revealed as a physical mechanism, that may be started, controlled, or stopped according to the will of the experimenter, is a fact which cannot but strengthen the hope of ultimately controlling the very genesis of life itself. The actions of the bodily ferments have been closely imitated by the various metallic enzymes. The whole trend of modern biological research is in the direction of a chemical and mechanical interpretation of life. The mysterious "vital spark" may be identical with some of the physical agents which have recently loomed into the ken of the physicist. There is really nothing more mysterious about life than about the constitution of matter or the nature of energy. It is now recognized that matter is the seat of constant disturbances, of disintegrations and reconstructions. The startling manifestations of radio-activity led Prof.

Burke to inquire: "Cannot this instability and decay of inorganic matter of atoms of highly complex structure, in suitable environments, be the seat of disturbances, of fermentations, and of metabolisms?" It may ultimately be shown that there is no real chasm separating the organic from the inorganic world, that both are manifestations of the same fundamental thing. The utter impossibility of sharply separating the living from the non-living is vividly reflected in the words of Prof. William K. Brooks, of Johns Hopkins University: "May not the truth that biology is the physics and chemistry of living beings be true only when it is joined with the converse truth that physics and chemistry are part of biology? It is only as living beings that we care to know. If the modest biologist were to assert that the biological aspects of the physical science are the only basis for rational interest in these sciences, his good friends in physical and chemical laboratories would no doubt charge him with arrogance, although they must admit that the principles of science, as distinct from the concrete sciences, are part of biology."

It may be true that the radiobes represent a stage in the evolution of the inorganic into the organic world. Unfortunately these bodies and their cultures are so small that an investigation of their chemical constitution has been impossible. Their behavior at least shows that they are markedly unstable, and in this they agree with living things. It was Pflüger who advanced the hypothesis that the difference between non-living and living proteid is a chemical one. In the former nitrogen exists in combination with hydrogen in the NH_2 (amide) group, while in protoplasm the nitrogen exists in combination with carbon, in the CN (cyanogen) group. The cyanogen compounds, of which fulminic acid is one, represents some of the most unstable or explosive substances known to chemistry. Living substance exhibits this same instability. In the process of anabolism the N. is severed from the H. and joined with the C. to form a highly labile compound. In catabolism the N. leaves the C. and goes back to the H. and is excreted in the form of $(\text{NH}_2)_2\text{CO}$, (urea). The experimental evidence upon which Pflüger's theory is partly based is the fact that when nuclein is treated with dilute mineral acid, one of the decomposition products, adenin ($\text{C}_5\text{H}_5\text{N}_5$), is an isomer of hydrocyanic acid.

If Pflüger's hypothesis is correct, one can readily understand how the radium emanations, themselves the product of disintegration of matter in a highly unstable form, should set up in bouillon the same atomic rearrangements which are effected in proteid matter by the living cells during the process of assimilation.

About ten years ago, the world was startled by the announcement from the chemical laboratory of Prof. Moissan, of Paris, that the latter had succeeded by means of high pressure and the intense heat of the electric furnace, in manufacturing diamonds from amorphous carbon. Although too small to be of great commercial value, the diamonds thus produced were no different from those dug out of the earth. Moissan had merely imitated Nature's own process. With the same agents at his disposal, namely, great heat and pressure, he succeeded in producing on a small scale the remarkable metamorphosis of carbon, which Nature on a large scale had accomplished in her vast terrestrial laboratory. With a slight stretch of the imagination one may compare the researches of Burke with those of Moissan. Employing a source of energy which is known to have existed at a time when the earth was gradually cooling from its incandescent state, namely, radio-activity, and which may have participated in the transformation of the lifeless clod into the pulsating organism, he has imitated Nature's handiwork. The radiobes of Burke may thus be regarded as bearing the same relation to the non-living compounds of the sterilized bouillon, that the diamonds of Moissan bear to the pieces of structureless charcoal.

ECHOES AND NEWS.

NEW YORK.

First Harvey Lecture.—The first lecture of the Harvey Society course will be given by Prof. Hans Meyer, of Vienna, at the New York Academy of Medicine on Saturday evening, October 7, 1905, at 8.30 P.M. Subject: "Die Theorie der Narcose." This lecture will be delivered in German.

Society of the Medical Inspectors of the City of New York.—The last regular meeting of this Society met Tuesday, October 3. The program was as follows: "Demonstration of a Sanitary Closet Seat," by Albert F. Lesler, M.D.; "Physical Deformities of School Children and Their Control," by Edward M. Thompson, M.D.; "A General Consideration of the Contagious Diseases of the Scalp and Skin as Observed in Children of the Public Schools," by Jacob Sobel, M.D.

Society of Social and Moral Prophylaxis.—The October meeting of this society will be held October

12, 1905. The following papers will be read: (1) "Should the youth of the country be educated in a knowledge of Sexual Physiology and Hygiene?" by Dr. Prince A. Morrow. (2) "What should be the nature and scope of this education?" (3) At what age should this instruction be given, and should it be progressive according to the age of the individual?" by Dr. E. L. Keyes. (4) "Through what agencies should this instruction be given—through parents, physicians, or teachers? Should our educational centers—high schools, colleges and universities—be utilized for this purpose?" by Mr. Luther R. Gulick and Rev. Lyman Abbott. (5) "Should the teaching of Sexual Physiology be incorporated in our text-books of Elementary Hygiene?" by Dr. P. M. Balliet, School of Pedagogy, New York University.

St. Elizabeth's Home for Convalescents.—St. Elizabeth's Home for Convalescents was opened Thursday of last week, at Spring Valley, N. Y., and becomes one of the activities under the auspices of the Special Works Committee of the St. Vincent de Paul Society. Thomas M. Mulry, president of the Particular Council of New York; Dr. D. J. McMahon, supervisor of Catholic charities; J. J. Barry, chairman of the Fresh-Air Committee, and Bishop Cusack took part in the ceremonies. The home will bear a very direct relation to the relief work carried on throughout the city by the different branches of the St. Vincent de Paul Society. It will be maintained the year 'round in buildings not far from the summer home at Spring Valley, and there is a capacity for forty in residence. The beneficiaries will include girls, workers in stores or factories, who may not be hospital cases, but are in pressing need of rest and building up; convalescent women, discharged by the overcrowded hospitals, but not yet fit to take up the full burdens of life; and the mother who "steps from the maternity hospital into the street, with her newborn babe at her breast, having neither friend nor home to go to."

Tuberculosis Hospital in New York State.—The trustees of the New York State Hospital for Incipient Pulmonary Tuberculosis in the Adirondacks last week issued their completed statistics for the first year, which show an excellent percentage of recoveries and improvements. There were admitted during the year 207 patients, more than half of whom were incipients, according to the strict definition of the term. There were no deaths. Of the 105 patients discharged, 52 were apparently recovered. The word "apparently" is used advisedly, as the officers do not feel that a consumptive can be said to be cured until he has been two years or more without any symptoms of the disease; 26 arrested cases are reported; 16 improved during their stay here, while 11 left without any improvement. Of the latter number, 4 remained in the hospital less than a week, 5 less than a month, and 2 less than six weeks. Great care is exercised in the first examinations, and advanced cases will not be sent to the hospital. Treatment at the hospital consists mainly of outdoor air, wholesome food and rest. Hardly any medicine is given. During the summer months tent life has made the open-air treatment ideal, because nearly the entire time has been spent on the verandas or in the tents with all the flaps raised. The patients have three full meals and two or three luncheons a day. The effect of the generous diet is shown by the marked gain in weight; 90 of the 105 gained an average of 10.57 pounds each. The Ray Brook Hos-

pital, which is a State institution, is three miles from Saranac Lake, toward Lake Placid, on a tract of land containing 516 acres, adjoining the State forest reserve. The altitude is 1,635 feet. The buildings face the south, and are located to secure protection from the wind. The hospital is intended for patients suffering from tuberculosis in the incipient stages, who are unable to pay for treatment at a private sanatorium. People entitled to free treatment secure admission through the local authorities having charge of the poor in the town, city, or county in which they live.

New York City Health Conditions.—Dr. Thomas Darlington, President of the Health Board, has submitted to Mayor McClellan his report for the first six months of the year. The Commissioner finds that very gratifying results have followed the extra vigilance in inspecting schools and in the analysis of samples of food and milk in the department's laboratory. The total number of inspections in all branches for the six months was 999,658, as against 799,161 in 1904. Nearly 60,000 specimens of milk have been examined, and more than 19,000 quarts of adulterated milk destroyed, a large increase over any previous year. In the first six months of 1905 53,000 milk inspections were made, which is about 24,000 more than ever before in the same period. Nearly \$10,000 in fines has been collected for the violation of Section 53 of the Sanitary Code, which relates to the adulteration of milk. This amount represents four times more in fines than was ever before collected. Special attention has been paid to the sources of the milk supply, and inspections have been made over all the large railroads which transport milk. The creameries situated along these roads have been thoroughly examined, and owners and operators have been informed of the changes required by this department to permit the sale of their milk in the city of New York. More than 4,000,000 pounds of fruit, 7,500,000 pounds of food and 1,000,000 pounds of meat and fish have been condemned and destroyed, 8,000,000 pounds more than ever before condemned in the same period. Special efforts, the report says, have been made in the Bronx and Richmond to care for the water supply and drainage, and progress has been made in connecting premises with sewers, in filling in wells and cesspools, and in draining open lots. There has been a diminution in the number of cases of contagious diseases reported, 17,456 being recorded, against 19,114 for the corresponding period of the previous year. On March 29 a new procedure was introduced in the system of medical school inspection. Previous work had shown such extensive prevalence of contagious diseases of the eye and skin and defects of vision that it was determined to make a general physical examination of the pupils in several large schools, to ascertain what and how numerous were the morbid conditions among school children, which were likely to affect their future general health and usefulness. This examination was directed especially to the determination of defects of vision, hearing and of the locomotive apparatus, etc., and the presence of disease of the heart, lung, or nervous system. This examination was made in the case of each child in addition to the examination for contagious disease of the eye and skin and the general contagious diseases. In the two months while this inspection was in progress 17,825 children were examined. Of this number more

than 48 per cent. were found to be in such condition as to require medical attention. To confirm the results of this work a second inspection was made by specially detailed men, which gave a slightly higher percentage than the first inspections. These inspections were largely in the primary department, where such conditions are most remediable and have the most important influence in the physical and mental development of the child. While the cases of contagious diseases have been fewer, the number of visits to the schools, tenement houses, private houses, etc., have been almost as many as in 1904, the total number being 197,042, as against 1203,814 during all of last year. The registration and sanitary supervision of pulmonary tuberculosis is in a far more satisfactory state than ever before. The number of beds in the institutions of the city available for cases of this disease has been increased. Close relations have been established with the New York State Hospital for incipient tuberculosis at Ray Brook. The work of the Clinic for Tuberculosis has progressed satisfactorily. Cerebrospinal meningitis, the report says, again became prevalent in the winter months of 1905, and a special commission was appointed to take up the consideration of this disease. Investigations led to important results, showing conclusively that this was a communicable disease, and making evident the means by which its prevention could be rendered possible. On April 8, 1905, cerebrospinal meningitis was declared to be a communicable disease, and since that date isolation of cases, disinfection of rooms, and all other necessary sanitary precautions have been taken with each case, as with other communicable diseases. The results of the commission's investigation emphasized the importance of the prevention of expectoration in public places. Dr. Darlington's report closes with the announcement that there has been an increase in births and marriages and a decrease in deaths. There were 50,943 births, 20,768 marriages and 37,969 deaths.

PHILADELPHIA.

Inmates of Station House Fear Typhoid.—The officers of the Haddington Station are in constant danger of being infected with typhoid, owing to the presence of stagnant water in the cellar of the building. The drains connected with the sewer have been clogged for six weeks; the odor about the place is pronounced unbearable.

To Aid Hospitals.—On November 23, 24 and 25 a fair will be held at the Horticulture Hall by the ladies constituting the Board of Visitors of the University of Pennsylvania Hospitals. The fair will be open from 2 o'clock in the afternoon until 10 o'clock in the evening. The carnivals held recently at Twelfth and Rush streets will enrich the Samaritan Hospital.

Medical Schools Begin Another Collegiate Year.—The principal address at the opening exercise of the Medical Department of University of Pennsylvania was made by Dr. Alfred Stengel. Several changes in the teaching staff were announced. Dr. Ewing Taylor was elected associate in anatomy; Dr. Henry L. Beates, assistant in physiology, and Dr. Rufus B. Scarlett, voluntary assistant demonstrator in pathology. The following handed in their resignations: Dr. Adolph W. Miller, assistant professor in materia medica; Dr. Robert Formad, demonstrator in normal histology; Dr. John M. Swan,

demonstrator and student's physician; Dr. George P. La Rogue, assistant instructor in surgery; Dr. Samuel McClary, assistant demonstrator in normal histology. At Jefferson Medical College, the opening address was delivered by the Hon. William Potter. Dr. E. M. Howard opened the exercises at the Hahnemann Medical College by an address. At the Medico-Chirurgical College Judge Beidler presided and Dr. J. M. Anders delivered the address. Dr. Clara Marshall, dean of the faculty, delivered the opening address at the Women's Medical College. At this institution Dr. Alice Wells Tallents, a graduate of Johns Hopkins, succeeds Dr. Edith Cadwalader who has tendered her resignation.

Meeting of the Pennsylvania State Medical Society.—The members of this society were well entertained by the International Correspondence School of Scranton. Refreshments were served. At the State Hospital Dr. E. E. Montgomery performed two difficult abdominal operations and Dr. S. D. Risley conducted an ear operation; Dr. William C. Posey did an operation for squint at the Moses Taylor Hospital. At the final session the newly elected President, Dr. M. B. Hartzell, of Philadelphia, announced the committees as follows: Scientific Work—Dr. Theodore Appel, Lancaster. Public Policy and Legislation—Dr. Roland G. Curtin, Philadelphia; Henry Beates, Jr., Philadelphia; Ewing W. Day, Pittsburg. Archives—A. O. J. Kelly, Philadelphia; Francis M. Perkins, Philadelphia; Cyrus Lee Stevens, Athens. Teaching of Physiology and Hygiene in Public Schools—Edward Stieren, Pittsburg; D. H. Bergy, Philadelphia; H. A. Hare, Philadelphia; Frederick A. Rhodes, Pittsburg. Transportation and Place of Meeting—A. M. Eaton, Philadelphia; Charles A. Codman, Philadelphia; A. F. Myers, Blooming Glen; W. K. T. Sahm, Pittsburg; H. E. Zerner, New Castle. Malpractice—John B. Donaldson, Canonsburg; J. W. Ellenberger, Harrisburg; W. M. Findley, Altoona. Orations—Medicine, D. W. Jeffries, Chester; Surgery, Otto C. Gaub, Pittsburg; Gynecology, Frank F. Simpson, Pittsburg; State Medicine, Samuel G. Dixon, Ardmore; Neurology, Theodore H. Weisenburg, Philadelphia; Laryngology, Ira J. Dunn, Erie. Officers of Sections—Medicine, Lawrence Litchfield, Pittsburg, chairman; James H. McKee, Philadelphia, secretary. Surgery, W. L. Estes, South Bethlehem, chairman; John H. Jopson, Philadelphia, secretary. Specialties, Samuel D. Risley, Philadelphia, chairman; Robert Milligan, Pittsburg, secretary. Committee on Credentials—Alexander R. Craig, Columbia; C. W. Coulter, Oil City; James F. Elder, New Bridgeton.

CHICAGO.

Banquet to Dr. Senn.—On November 11 the medical profession of this city will tender a banquet to Dr. Nicholas Senn. The committee of arrangements is composed of the following men: Drs. Wm. A. Epans, Frank Billings, John B. Murphy, Wm. L. Baum and David J. Doherty.

New Hospital for Evanston.—A maternity hospital, adjoining the Evanston Hospital, is to be built as a memorial for the late Mrs. Elizabeth Williams, whose six children have contributed \$25,000 to the building fund. Mrs. Annie Locke will be in charge of the hospital.

Opening of Northwestern University.—Indications point to a larger enrolment in all departments of this university than last year. The department of chemistry has been enlarged, and Walter Libbey has been

appointed professor, with Theodore Whittlesey, transferred from the School of Pharmacy, as assistant.

Oak Park (Illinois) Hospital Site.—The Oak Park Hospital Association is determined that the village shall have a hospital to cost from \$100,000 to \$150,000, although a majority of the people there voted against it at the last election. Dr. J. W. Tope, at a meeting recently held, submitted a proposition to the executive committee of the hospital association to pay for the site selected for the institution. This consists of six acres in Fair Oaks, in the northern part of Oak Park. Dr. Tope's idea is to have a Catholic sisterhood take charge of the hospital, although that is not a condition of his gift. The sisterhood will build the hospital.

Examinations for County Hospital Staff.—The members of the consulting staff of Cook County Hospital met in joint session on September 19, with the Civil Service Commission of Cook County, to consider questions relating to the announced examination of candidates for the hospital staff. The examining board is as follows: Drs. C. S. Bacon, Frank Billings, D. R. Brower, H. H. Brown, Sanger Brown, T. J. Conley, A. C. Cowperthwaite, N. S. Davis, J. B. De Lee, Fernand Henrotin, F. C. Hotz, Stuart Johnstone, John B. Murphy, H. T. Patrick, C. E. Paddock, W. E. Quine, Edgar M. Reading, N. Senn, G. F. Shears, H. M. Starkey, D. A. K. Steele, J. H. Stowell, H. S. Tucker, C. S. Williams and C. A. Wood. Dr. Henrotin was elected Chairman of the Board, and Dr. J. B. De Lee, Secretary. An executive committee, which will later name the membership of the sub-boards for each of the twelve departments, was appointed, as follows: Dr. Wm. E. Quine, chairman; Drs. J. B. Murphy, H. T. Patrick, J. B. De Lee, C. A. Wood, George F. Shears, E. M. Reading. Dr. Henrotin is a member of the committee *ex-officio*, and Dr. De Lee was elected Secretary.

CANADA.

Toronto Western Hospital, Toronto.—Scarcely ten years ago the Toronto Western Hospital began work in a small house with accommodation for less than ten patients. To-day it occupies a large building, accommodating about sixty patients, while in an annex just completed, in separate tents and in the main tents, there is an additional accommodation for fifty-five more. In addition two houses on an adjoining street have been secured and fitted up for a maternity hospital. The present grounds of the hospital now extend over $4\frac{1}{2}$ acres, and options are held on adjoining lots. It has been planned that this fine site shall contain a group of hospital buildings of the most modern structure. The new annex just completed cost \$10,000. Another annex is in contemplation for infectious diseases, and it is proposed to soon commence the erection of a nurses' home. Three years after the organization of the hospital it was incorporated by the legislature. The Board of Governors consists of six laymen and six practitioners, and is elected annually. The hospital receives public, semi-private and private patients. The hospital staff numbers forty physicians and surgeons. There is a training school for nurses, and the course covers three years. Most extensive use of the open-air treatment has been made in this institution, which was first adopted through lack of accommodation, and its success has led to a wide application of the system. The patients practically live outdoors during the day, the tents being open all

summer and quite comfortable during winter. This treatment has become an important feature of the Toronto Western Hospital methods. A number of bequests have recently been arranged for, totalling \$50,000.

Personals and News Items.—Cerebrospinal meningitis has broken out again near Ottawa, Ont.

Winnipeg presents a good bill of health for September. If it were not for a few cases of typhoid fever, the city would be healthier than for years.

There were 123 deaths in Montreal during the week ending September 23, against 121 births during the same time.

Hamilton, Ont., will build a sanitarium for consumptives at a cost of \$50,000, \$20,000 of which has already been raised.

The new Maternity Hospital, Montreal, which is being erected at a cost of \$125,000, will be open by October 15.

Dr. W. H. F. Addison, one of the house surgeons at Toronto General Hospital, has been appointed lecturer on histology at the University of Pennsylvania, and will commence his duties at once.

The death is announced of Dr. Louis J. A. Simard, oculist and aurist, of Quebec City.

Dr. C. K. Clarke, who is moving from Kingston to Toronto to become superintendent of the Toronto Provincial Hospital, received from the staff of the Kingston Provincial Hospital an address and a cabinet of silver.

The medical fraternity of Dawson, Yukon Territory, conferred with the Lieutenant-Governor on September 25 regarding the epidemic of dysentery in that city.

The death is announced of Dr. George Riddell, of Crystal City, Manitoba.

Dr. Victor C. Vaughan, of Ann Harbor, Mich., delivered the opening lecture of the Medical Faculty of Toronto University, on the evening of October 3.

Dr. Matthew D. Mann, of Buffalo, N. Y., delivered the opening address of the Toronto Medical Society on the evening of October 5.

The Toronto Clinical Society commenced the winter session on the evening of October 4, when Dr. Adam H. Wright delivered the annual presidential address.

Dr. J. Alex. Hutchison, of Montreal, chief surgeon of the Grand Trunk Railway, has been appointed chief surgeon of the Grand Trunk Pacific.

Dr. William Gardner, of Montreal, has been elected second vice-president of the College of Physicians and Surgeons of Quebec.

Dr. E. Pelletier, of Montreal, has gone to Paris to study tuberculosis and to attend the Congress on Tuberculosis as a representative from the Board of Health of Quebec.

GENERAL.

Dr. Nothnagel's Chair.—It is announced that Prof. von Jaksch, of Prague, has been called to Vienna to take Dr. Nothnagel's chair.

Dr. Osler Again in Harness.—Professor Osler, of Oxford, has accepted the post of Thomas Young Lecturer on Medicine at St. George's Hospital, and will give a series of lectures and demonstrations at the hospital next spring on the diagnosis of abdominal tumors.

Epidemic Cerebrospinal Meningitis in Germany.—The epidemic of cerebrospinal meningitis may now be looked upon as extinguished in Silesia. Since the disease first broke out, on November 19 of last year,

in round numbers 2,950 persons were attacked and 1,600 died. In the whole of Prussia there were 3,250 cases and 1,750 deaths.

Thirtieth Annual Meeting of the American Academy of Medicine.—The thirtieth annual meeting of the American Academy of Medicine will be held at the Assembly Hall of the Northwestern University Building, corner of Lake and Dearborn Streets, Chicago, on Thursday and Friday, November 9 and 10, 1905. The following papers will be read: "The Physiology of Recreation," by G. W. McCaskey, of Fort Wayne, Ind.; "Recreation in Its Influence on the Nervous System," by W. J. Herdman, of Ann Arbor, Mich.; "The Ceremonial and Festa in the Organized Recreation of Larger Groups of Individuals," by Bayard Holmes, of Chicago; "The Relation of Recreation to Education," by Prof. Robert K. Row, Berwyn, Ill.; "Maturation and Senility," by A. L. Benedict, of Buffalo, N. Y.; "The Medical Features of the Papyrus Ebers," by Carl H. von Klein, of Chicago.

The Journal of Biological Chemistry.—This month there will be issued the first number of *The Journal of Biological Chemistry*, a journal designed for the publication of original investigations of a chemical nature in the biological sciences, whether concerned with the phenomena of animal or of vegetable life. Without rigidly defining the scope of the journal, it may be stated that its pages will be open: First—To workers in zoology and botany and the branches of knowledge in which these sciences are applied, for such of their researches as are of a chemical or physico-chemical nature; second—To workers on the chemical side of the experimental medical sciences, as physiology, pathology, pharmacology, hygiene, physiological chemistry and bacteriology; third—To those who are engaged in any branch of clinical medicine, when their researches are of a chemical nature; fourth—To the specialist in organic chemistry, who will find here a fitting place for the publication of researches which have biological or medical interest. The growing importance of chemical research in the elucidation of general biological and medical problems, and also the increasing activity of American investigation in this field, point to the need of a journal of the character here outlined. At present there is no periodical in the English language that meets the requirements of the biological chemist. With the hearty cooperation of American investigators the editors feel confident that the new journal will prove truly representative of the best work in biological chemistry. Contributors will be allowed prior publication of announcements or abstracts in other journals. Every legitimate effort will be made to bring the journal to the notice of foreign readers and workers. At least six numbers of *The Journal of Biological Chemistry* will be issued yearly and will constitute a volume, each volume to contain between five and six hundred pages.

Luxury of Hospitals.—Luxurious hospitals and the too lavish use of the surgeon's knife were the topics discussed by Sir Henry C. Burdett, K.C.B., of London, last week, at the opening session of the seventh conference of hospital superintendents held in Hotel Vendome, Boston. Dr. D. W. Cheever delivered an address of welcome, speaking for 2,500 physicians of Massachusetts. The Rev. Edward Everett Hale also spoke. He commended the efficiency of the Massachusetts General Hospital and the Boston City Hospital, urging also the value of home neighborhood hospitals. Dr.

Henry M. Hurd suggested some of the problems in which hospital superintendents are interested. Among them were the question whether hospitals should be carried on for the benefit of the sick, or for the medical profession and for the training of nurses. The president of the association, Dr. George H. M. Rowe, briefly reviewed the history of the association, whose principle was cooperative, democratic and beneficial. The modern hospital, he said, should be more than a comfortable home—it should be well equipped. The cost of the care of patients would be less in branch than at the chief hospitals. The hospital is a school for the medical student and should have every advantage. Sir Henry C. Burdett said it was twenty-five years ago when he first visited the United States and saw the first American hospital in the city of Boston. He said it was a great thing that in the United States there is now an association of hospital superintendents. For things are not satisfactory in the hospitals. "The sooner, in my opinion," said the doctor, "the medical profession fairly and squarely recognizes that it is wrong to bring up their students with the idea that you cannot perform an operation unless it is in a marble hall costing some \$50,000, the better it will be for the future of science and the care and treatment of the whole body of the population. I don't believe there is any justification whatever for this excessive expenditure on operation tables, and I am glad to see that this view is growing in the minds of some of the leaders of surgery. What we want is surgeons who, with wisdom to be conservative, have the courage to protest against the growing tendency to put a knife into everybody on the smallest possible pretext. The hospitals to-day are being diverted improperly from the object they were established to attain—the relief and care of the sick and of those who cannot otherwise afford to provide that care. They are nowadays utilized not only for the poor, but also increasingly for the better classes, to the exclusion of the poor. Now, the poor patient must become the first consideration of the managers and trustees and superintendents of our great public hospitals. It is as possible to have here a uniform system of accounts as it has been found in England and some of the colonies. You now treat free and paying patients very often in the same ward and very often in the same building. What requires to be done is this: You must have your free hospital patients in a separate building. All patients who can pay for their treatment and maintenance, or can pay a larger sum than the actual cost, should be treated in a separate building." The afternoon was spent by the superintendents in discussing questions of the construction and arrangement of hospitals, the speakers being Architects Edmund M. Wheelwright and Bertrand E. Taylor, of Boston, and Dr. A. J. Ochsner, of Chicago. In several of the addresses emphasis was laid on the importance of unit furniture and accessories as a precaution against dust. There was also an address on the standardizing of hospital construction and equipment. The discussion was by Dr. Renwick R. Ross, Dr. Henry M. Hurd, of Baltimore; Sir Henry C. Burdett, of England; Dr. Fisher, of New York, and Dr. Armstrong, of Boston. In regard to the standardizing of hospitals, several speakers urged that this was impossible, owing to the different aims of hospitals as well as to the different sums that could be expended on them.

First International Congress of Anatomists.—The first meeting of the Congrès fédératif international d'Anatomie was held in Geneva, and commenced on

the morning of Sunday, August 6, by the opening of an exhibition of specimens and appliances illustrating recent progress in anatomy. The congress closed on the evening of Thursday, August 10, when three hundred members and adherents of the congress were entertained by the city of Geneva at an official banquet. The congress represented a conjoint meeting of the five leading anatomical societies—the Anatomical Society of Great Britain and Ireland, Anatomische Gesellschaft, Association des Anatomistes, Association of American Anatomists and the Unione Zoologica Italiana. Almost every country was represented. Switzerland itself contributed more than 100 members, France 66, Germany and Austria 36, Great Britain and Colonies 23, Italy 11, America 3, and other countries 16. The largest contributors to the proceedings of the congress, however, were the Germans; out of a total of 117 communications, 32 were made by them, 31 by the French, 18 by the British, 15 by the Swiss, 8 by Italians, 5 by Swedes, and 2 by Americans.

From every point of view the congress was a success. Anatomy is peculiarly susceptible of international treatment, the subjects for description and discussion being concrete and capable of direct demonstration. The language difficulty certainly hindered a free discussion on more than one occasion; for instance, on the second day, a speaker, after giving his communication in French, listened most attentively to a vigorous criticism in German, and, bowing profoundly, replied, "Je ne comprend pas l'allemand." With an agenda list overloaded with 117 communications, there was a grave risk of disorganization. Thanks to the complete arrangements made by the committee of organization, presided over by Professor A. Éternod, of Geneva, and to the perfect arrangement of business by the president of the secrétariat, Professor von Bardeleben, the proceedings of the congress made an even and steady progress. The success of the congress must also be ascribed to Professor Nicholas, of Nancy, secretary of the French society; English members were indebted to Professor Symington, president of the British society, and to Dr. Christopher Addison, its secretary. Each day's work was divided into two parts: the morning was devoted to papers, ten minutes being allowed for each communication, and three minutes to any member who wished to criticize; the afternoon was set aside for exhibition of new specimens and demonstrations of the material on which the communications of the morning were based, and this was by far the most instructive and profitable part of the day's work. The Swiss cow-bell employed by the president of each day's proceedings (for the president of each society acted in turn as chairman) to warn the speaker that he had reached the limit of his allotted time, bound the members of the congress by a common sense of humor and materially aided the success of the meeting. In spite of the *entente cordiale*, the British anatomists associated more closely with the German than with the French members of the congress—an association determined, for the greater part, by the fact that the Germans were the superior linguists.

The members of the congress took part in the dedication of a monument to the memory of Professor Hermann Fol, who set sail from Havre in his yacht, *l'Aster*, in the spring of 1892 to investigate the fauna of the Mediterranean. From the day he sailed until now not a single trace has been discovered of ship or crew. The members of the congress were

lavishly entertained by Madame Fol. The congress placed a wreath on the bust of the Swiss physiologist Servetus, who discovered the pulmonary circulation in the sixteenth century, and was burned at the stake by Calvin because, so it is said, he denied the existence of the Trinity. A wreath was placed by the British section of the congress on the spot where he was burned, this gracious act being prompted by Professor Dixon, of Trinity College, Dublin.

The congress was a social as well as a scientific success. An invitation from American anatomists to meet at Boston in 1907 was declined, as it was felt that at least a space of five years should intervene between each congress. A permanent committee for the organization of the next congress was formed by the nomination of five men, one from each of the five affiliated societies. It is intended to bring out a bulletin containing the proceedings and transactions of the congress, to which purpose part of the sum (11,000 francs), raised by subscription in Geneva to meet the expenses of the congress, will be devoted. When it becomes the turn of London to entertain this congress, it will not be found an easy matter to attain the standard of hospitality which has been set by Geneva.—*Science*.

American Science through German Eyes.—One of the foreign delegates to the International Congress of Arts and Science held in connection with last year's exposition at St. Louis has just been giving his countrymen his impression of our position and progress in science and his ideas of the relations that should obtain between scientific men here and abroad. This delegate, Professor Waldeyer, of Berlin University, has had, we are told by Lewellys F. Barker in an article contributed to *Science* (New York, September 8), "more than most foreigners, opportunities for familiarizing himself with American science and American thought," having visited this country several times, being familiar with our literature and knowing us "by personal observation, by correspondence, by reading, and by multiple contact with educated Americans." Waldeyer's impressions were given in an address before the Royal Prussian Academy of Sciences, which is summarized and discussed in Mr. Barker's article. Says the writer: "Waldeyer admits that in Germany the false opinion that the American turns predominantly toward material interests and that he has but little inclination for purely scientific things is still widespread. Those who hold it, he says, forget America's great universities—Harvard, nearly 300 years old, with its 5,000 students per year; Yale, more than 200 years old; Princeton, Brown, the University of Pennsylvania, contemporaneous in foundation with Göttingen; Columbia, established seven decades ago; and young institutions, like Johns Hopkins, Cornell, the University of Chicago, and the University of California, already grown to powerful positions in the country. If Germany bore in mind the great public libraries which exist in America, with their magnificent equipment, their easy access and their prodigious use by all classes, including the working people, such a wrong impression could not prevail. The American's recognition of the fact that culture brings freedom with it, and his realization that, in a country where every one has the choice of sinking or swimming, a good education is a necessity for him who will hold himself above water in the fierce struggle, have led to the expenditure of great sums for public schools, for advanced education of all sorts, for museums, collections, laboratories and the like, with results as good or better than those attained in Germany. Waldeyer, impressed with American progress in this

regard formerly, confesses himself surprised at the advances made in the last decade. They surpass, he says, all expectations. One needs no special prophetic gift to predict that in fifty years the United States will, as regards good arrangement, ease of use and wealth of what is offered, far outdo Germany."

But what have we done with these opportunities? Before answering this question Professor Waldeyer reminds his hearers that climatic influences bear a large part in mental development and that over wide areas these are the same in the United States and in Europe. Says Mr. Barker: "The type of man is the same, indeed the whole of Europe has sent, in large part, of its best to contribute to the population of the United States. The means of culture are the same; in many respects America has the advantage, especially as regards ease of use and multiplicity of institutions. There can be no doubt, then, that in America effective men and women must develop in all spheres."

That we have so developed Professor Waldeyer thinks cannot be denied. He enumerates and praises our scientific institutions one by one, and finally, dwelling particularly on our advance in the biological sciences, of which, as his own specialty, he is best able to judge, he says: "I find that over there they stand equal to us in all essential points—in the kind and method of scientific work, in the value of the same, in the equipment and arrangement of laboratories, in materials for instruction and in the form and mode of imparting knowledge. Visit the great workshop of Alexander Agassiz in Cambridge; the anatomical institutes of Huntington in New York, at Columbia University, and of Mall in Baltimore; the Peabody Museum, so brilliantly filled by Marsh, of Yale; the anthropological museum in New York, etc., and you will say that I am right. J. Orth has recently made a similar statement. In a few years the new buildings of the medical school, at Harvard will be ready; . . . it may be prophesied that in them we shall have the best to be seen anywhere."

But in the making of great scientific discoveries and the formation of theories which have opened up new domains of knowledge Europe is still, Waldeyer declares, ahead of America. Mr. Barker quotes him as saying: "To Europe belongs the credit of a surprisingly large number of new chemical elements, spectral analysis, and, with it, astrophysics, the great discoveries in the chemistry of dyes and sugars, the physical chemistry of solutions, the liquefaction and condensation of gases, especially liquid air, the Roentgen and Becquerel rays, radium and its rays, color-photography, the dynamo-machine, electric light, indeed most of the investigations and applications of electricity as a source of power, the electric furnace and its fruitful application; in the field of biology almost the whole doctrines of the protozoa and bacteria with their explanations of epidemics, the toxins and antitoxins, the working-out of the doctrine of immunity, the discovery of the finer processes of fertilization and of karyokinesis, the doctrine of descent and Darwinism, and, above all, crowning all, the conception and foundation of the great idea of the conservation of energy. These he lists as the discoveries and theories of European investigators during the past fifty years; many of them belong to the immediate past. It would be possible to enumerate a series of men and researches in the domain of the historical and philosophical sciences also, which would easily demonstrate that, in them, too, the main weight of achievement still rests in Europe." Professor Waldeyer is an earnest believer in the exchange of both teachers and students between Germany and

America. It would do no harm, he thinks, if every year a number of German students came to America to widen their horizon. In this and in other matters Germans should act toward America, he believes, as Americans do toward Germany; they should try to form a correct judgment of the scientific work of Americans by personal knowledge, and instruct themselves by visiting the country itself. That this course would tend to widen German culture he is certain, and he urges that this scientific intercourse between person and person, university and university, academy and academy should be favored in every way possible. He concludes: "Let us be as liberal to them as they are toward us in the reception of those who seek knowledge, in offering to them all that they need. Let their published researches be found in our libraries also, at least in the great Royal Library of the capital of the empire. Let us show them in all things that on coming to Germany they come to a people of intellectual affinity, under whose political and social institutions even they, with their free views, may have a feeling of well-being. That they do the same for us can be said, to their praise, by all who have been their guests."

OBITUARY.

DR. WILSON T. BASSETT died at his home in Coopers-town, N. Y., last week, aged eighty-four years. He was a graduate of Albany Medical College, class of 1844.

DR. WILLIAM P. TONRY, who was widely known as a chemist and toxicologist, died last Wednesday in Baltimore. He was sixty-five years old. Professor Tonry had given expert testimony in more than forty trials for murder and in over a hundred other cases in which testimony relating to chemistry figured prominently. His wife, who died about a year ago, was the daughter of the Mrs. Surratt, who was executed for complicity in the assassination of President Lincoln.

DR. ALONSO C. BUCK, a veteran of the Civil War, and for more than forty years connected with the War Department, died at his home in Hyattsville, Md., last week, in the eightieth year of his age. He was born in Glens Falls, N. Y., went to Wisconsin while a youth, studied medicine in Chicago and was practising there when the Civil War broke out. He enlisted in a Wisconsin regiment which formed part of the noted Iron Brigade, was subsequently transferred to the Hospital Corps, in which he served until the close of hostilities. He was then appointed a clerk in the office of the Surgeon General of the Army, reaching the grade of chief of division.

DR. HENRY DORWIN DIDAMA, of Syracuse, N. Y., dean emeritus of the Syracuse University medical college and one of the most widely known physicians in the State, died on October 4, at the age of eighty-two years. Several months ago he fell and fractured his femur from which he never recovered. Dr. Didama was dean of the medical college up to last June, when he was relieved from active duty and made dean emeritus. He was one of the organizers of the New York State Medical Society and was once its president. He belonged to the Syracuse Academy of Medicine, the American Medical Association and many other medical organizations. He was also widely known as a writer. Dr. Didama was born at Perryville, Madison County, June 17, 1823. His ancestors came from Holland, and his father was also a prominent physician in New Jersey. He graduated from the Albany Medical College with the class of 1846. Dr. Didama was noted for his ideas on temperance, refusing to prescribe alcohol in any form. He even refused to treat persons who used either liquor or tobacco.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, held at Scranton, Pa., September 26, 27 and 28, 1905.

FIRST DAY—SEPTEMBER 26TH.

Address in Surgery.—This was delivered by Dr. Jonathan M. Wainwright. To satisfy his suspicion that ether administered to an animal already suffering with shock gave rise to a fall in blood pressure, he performed a series of experiments on dogs, showing how the blood pressure would fall soon after the drug was administered. He found that a dog could be killed almost instantaneously by putting a few drops of ether in his trachea during the operation. He reviewed the literature of spinal anesthesia, consulting about 625 references, and found that 16,000 cases of spinal analgesia have been reported, many of which were in this country; of the 16,000 reported cases 11 died. He subjected a series of dogs to spinal analgesia and then etherized them and found that the blood pressure remained nearly stationary, barring, of course, the slight fall when the ether was first given. In another series of experiments he subjected isolated parts of dogs to certain degrees of heat under ether, but the blood pressure fell almost at once; if, however, the ether was preceded by the injection of cocaine into the spinal canal the blood pressure varied very little. He then subjected the extremities of dogs to the action of boiling water, then gave the spinal analgesia, and finally etherization, after which procedure the blood pressure either remained as it was before the operation or increased. In another series he crushed the extremities and then amputated the limbs. With ether alone the blood pressure did not remain high long, but in those cases where the ether was preceded by the spinal analgesia the blood pressure did not vary a great deal, and the animals remained alive. He cited several cases upon which he operated by cocainizing the spinal cord before giving the ether; some of these patients were above sixty years old, and they appeared to be in a better condition after the operation was completed than they were soon after the ether was first given. From his experiments he concludes that ether increases the already existing shock; that by means of cocainizing the spinal cord before the ether is given the patient is stimulated rather than depressed. He holds that spinal analgesia should not be used where the same operation can be done under a local anesthetic.

Results of the Surgical Treatment in Exophthalmic Goiter.—This was the title of the paper read by Dr. B. Farquhar Curtis, of New York City. Of the two operations which have recently sprung into favor for the amelioration of goiter, namely, partial thyroidectomy and removal of the cervical sympathetic ganglion, he prefers the first because it is more simple and the scars resulting from the operation are not so conspicuous. He cited a case treated surgically in whom the goiter returned some time after the operation, the patient dying from an acute endocarditis. Six of the patients that died had albuminuria after the operation, but not before, while one patient who recovered had albuminuria before the operation. Many of the patients who die suffer with acute thyroidism; if an attack is pending, Dr. Curtis says, surgical intervention should not be carried out. He stated that the cause of this condition is not known, but in all probability it is either of nervous origin or is due to the absorption of parts of the wounded gland or of its secretions. To do a partial thyroidectomy a general anesthetic must not be

employed, as such a procedure may induce acute thyroidism; the operation should be done under cocaine used locally. In some cases he ligates the artery, and this is done under a local anesthetic. Patients who were subjected to partial thyroidectomy were relieved of the distressing symptoms of the disease; the exophthalmus was lessened; the eyelids could be closed; the remaining gland decreased in size; the tremor and the other nervous symptoms were lessened. Of 136 cases, 17 died of acute thyroidism; the survivors of the operation are cured of the symptoms, but relapses occasionally occur.

In the discussion of this paper, Dr. R. G. LeConte, of Philadelphia, maintained that since the mortality of the operation upon this condition is but 12 per cent., the surgical intervention is justifiable. The greatest danger is acute thyroidism; if this condition should be due to the absorption of products of the gland the production of a perithyroid fibrosis by means of the X-ray may mitigate such absorption. He uses drainage in these cases for the same purpose. He does not look favorably upon removal of the cervical sympathetic ganglion for the relief of the condition.

Diagnosis of Pneumonia and Empyema in Children.—Paper read by Dr. Alfred Hand, of Philadelphia. In this paper he took the ground that small or even large areas of consolidation gave bronchial breathing and increased bronchial resonance, while the percussion note and auscultation show nothing; sometimes all the physical signs are negative, and the diagnosis must rest on the presence of the fever, the increased frequency of the pulse rate and respirations above 40 per minute. The presence of a leucocytosis will serve to aid in differentiating it from typhoid fever, while it may be necessary to do lumbar puncture in order to differentiate the pneumonia from tuberculous meningitis. The diagnosis in such cases, he said, is confirmed by the critical fall of the temperature, after which or even later the physical signs become evident. He mentioned the fact that empyema must be borne in mind. Important factors in recognizing this condition are the bleating character of the voice-sounds over the base of the lungs, with bronchial breathing audible but distant, and percussion gives a flat rather than a dull note, while over the upper lobe there is bronchial breathing and exaggerated vocal resonance. In compiling 200 cases of pneumonia he was able to make the following deductions: Fifty per cent. of the pneumonias were right-sided, 30 per cent. left-sided; 14 per cent. were bilateral; 4 per cent. of the cases developed empyema; 49 per cent. ended by crisis; 39.5 per cent. by lysis, and 10 per cent. of the cases were fatal.

In opening the discussion of this paper, Dr. J. P. C. Griffith, of Philadelphia, also took the ground that auscultation and percussion are of minor importance, as compared with the information obtainable from the expression of the child's face and its general appearance. Dr. J. H. McKee, of Philadelphia, noted that in all cases of pneumonia empyema must be watched for. He spoke of the practice of auscultation and percussion, and said that sometimes a normal chest and lung will give a cracked-pot sound with the pleximeter; if percussion is performed lightly this can be avoided.

Focal Diagnosis of Operable Tumors of the Cerebrum.—Dr. Charles K. Mills, of Philadelphia, read this paper. He said that to within a very short time the operation upon lesion in the cerebrum have been a failure rather than a success is perhaps due to three factors, namely, imperfect localization, smallness of the opening in the cranium and imperfect technic. He holds that the motor region, contrary to the views and the

teachings of the years just passed, is all or nearly all situated in front of the central fissure and its area is more limited than has been generally held. In the gray matter back of the central fissure sensory perception or perhaps some of the special senses are situated. He contends that tumors in this region have a tendency to begin in the core of some physiological area, which, he states, are six in number, the four most important of which are prefrontal, motor, mid-frontal and parietal. In regard to the size of the opening in the cranium for the purpose of removing a tumor he maintains that it should be not less than three inches and not more than four. Mistakes as to the diagnosis may be due to the fact that in the majority of instances the symptoms present at the time the physician sees the patient are alone considered, while those which were present at the time the tumor began are utterly disregarded. Poor result of operative procedures may be attributable to the fact that the patients are seen too late or that sometimes the nervous system is an expression of some other lesion. Both instances are illustrated in Jacksonian epilepsy, which disease often becomes widespread before he applies for treatment; then, too, it may be a symptom of some other disease, such as uremia. Paralysis of the external rectus of the eye is a very important factor, as it not only indicates the involvement of the nerve itself but even without this involvement paralysis may be a manifestation of the presence of a neoplasm in the immediate neighborhood.

Surgery in Relation to Operable Lesions of the Cerebrum.—This paper was read by Dr. Charles H. Frazier, of Philadelphia. He attributes the failure in this field of surgery to the fact that the lesions are not seen early enough, as for instance in Jacksonian epilepsy the convulsions have become more or less general. Adhesions are also a drawback and he found it impossible to prevent them from forming with the introduction of silver foil. The infantile and the juvenile hemorrhages have been very successfully treated surgically, if the cases are seen early. This form of hemorrhage may be due to thrombosis of an artery; the hematoma resulting from the hemorrhage is encapsulated and then becomes encysted and finally paralysis and convulsions ensue. He cited two cases of this condition, the one was seen about a month after the hemorrhage and the other a considerable time after its occurrence. In the first case good results were obtained, while in the second the condition is not much improved. Since evidences of improvement under iodides are sometimes present the therapeutic treatment is occasionally kept up until it is too late to operate. In many cases of disease of the cerebrum palliative operations are justifiable in that they give relief to symptoms accompanying incurable conditions. Very often choked disk is prevented by making an opening on each side of the cranium.

SECOND DAY—SEPTEMBER 27TH.

Deductions from the Experimentations Tending to Determine the Cause of Cancer.—Paper read by Dr. H. R. Gaylord, of Buffalo, N. Y. He said it was his firm belief that there is an analogy between the agent giving rise to cancer and the agent which is responsible for smallpox. He has seen many instances which clearly establish in his mind that the infectivity of this disease can no longer be doubted. He pointed out that in the experiments instituted it has been noted that cancer very frequently is seen in the breast of the female mice. He cited Orth who holds that the propagation of cancer is not carried from a tumor cell to

an epithelial. He declares that transplantations of tumors throw no light upon the cause of the spontaneous development of the primary tumors. It has, he believes, been repeatedly shown that the successive transplantation increases the virulence of the neoplasm and that the power of a cancer cell to proliferate is unlimited. He spoke of a case of adenocarcinoma becoming a spindle-cell sarcoma; this, he believes, is due to the fact that the irritant which stimulated the epithelium to the production of cancer now spent its force on the connective tissue of the tumor. By transplantation of tumors into mice adenocarcinoma have developed in their lungs—an organ that is rarely affected except by transplantation. It has been found that some of the offspring from mice suffering with carcinoma cannot be infected with the same growth. This fact seems to demonstrate that in some animals there exists an immunity to cancer. He has found that 21 per cent. of tumors transplanted killed the mice inoculated. There is no doubt in Dr. Gaylord's mind that a spontaneous retrogression of the tumors occurs and this cure may be due to an acquired immunity. It has been shown that if mice are treated with the serum of the blood of those mice suffering with carcinoma, it is much harder to infect the mice so treated; then, too, it has been found that if mice suffering with such neoplasms be treated with an immune serum the tumor will cease growing and will diminish in size. When mice so treated are bled the neoplasm at once begins to develop again; a resumption of the growth will follow hemorrhage in the animals if the tumor is undergoing retrogressive changes as a sequence to the treatment by the X-ray or radium. He has found the histological picture of a cancer undergoing retrogressive changes and one successfully treated by the X-ray or by radium to be identical. His inclination is strong toward the belief that the agent which produces cancer is a living factor.

Three Cases of Meningocele that Recovered.—Paper read by Dr. G. W. Guthrie, of Wilkesbarre. Two of these cases were spinal and one was in the occipital region. His first case healed spontaneously; it was first seen by him when the child was three weeks old and again when it was three months old. At that time the tumor was tense, translucent and fluctuating. He advised operation in the course of a very short time, but the patient was not brought back until it was two years old, when he found the tumor firm, but neither translucent nor fluctuating. The second case he saw when the child was four months old. The tumor was then tense, translucent, fluctuating and sessile. He saw the patient two years later and found that the tumor had increased in size; it was still tense, translucent, fluctuating and sessile. Upon this case he operated and found the contents of the sac were composed of a clear fluid and a few fibers which he took to be nerve filaments, but histological examination showed that they were fibrous tissue. The sac communicated with the spinal canal. The patient made a good recovery. The third case he saw when the child was five months old. The tumor was in the occipital region; it was large, fluctuating, translucent and sessile. He saw the patient a month later and found that the growth had increased in size. He operated and found the contents were fluid only. After the operation the head became rounded and the patient recovered. In discussing this paper, W. L. Estes, of South Bethlehem, called attention to the fact that when the meningocele is situated in the lumbar region the results from operation are not so gratifying. He is inclined to believe that this is due to the increased amount of pressure in the area.

The Conservative Treatment of Hypertrophied Prostate.—Paper read by Dr. H. M. Christian, of Philadelphia. He took exception to the statement made by a prominent physician that prostatectomy should now be classed with the operations of minor surgery. He gave the statistics of Whitesides, and quoted from this author quite extensively. Much of his paper is based upon the deductions of these statistics. He spoke principally of two classes of cases: (1) Those in whom health is good, the urine is either sterile or slightly infected, and in whom there is a small amount of residual urine. (2) Those in whom the health is fair and in whom there is considerable residual urine or more complete retention. He has four cases who have led a catheter life for ten years. In the first group of cases the conservative method should be tried at least, as he believes that prostatectomy is no simple matter. He advocates operation, however, when there is complete retention and when the catheter cannot be used easily. In order that the catheter life may be carried out it is necessary to put in the hands of the patient the proper catheter and that he be taught how to use it correctly. Christian prefers a soft rubber catheter with either a single or double elbow. The patient should never be allowed to use a metal instrument. To sterilize the catheter, he advises washing in soap and water and forcing the water through the instrument; then he boils the catheter for ten minutes. The hands of the patient and the glans penis should be washed with bichloride before the catheter is passed.

In opening the discussion on this paper, Dr. Gaylord, of Buffalo, took the ground that with the use of the catheter it is impossible to prevent infection of the bladder. He holds that the high mortality rate is due to infection of the kidneys. Then, too, since the laceration of the perineum is less, the mortality will be correspondingly diminished. As to the preferred operation upon this gland, he says, although with the suprapubic method the middle lobe can be reached more easily, and although injury to the urethra is less, he still prefers the perineal route. He inclines to the view that if the patients are seen earlier the statistics will change. Dr. Gibbons, of New York, declared that prostatectomy is the rule now rather than the exception, and holds that this is a comparatively simple operative procedure, because the prostate can easily be drawn down to the skin margin, regardless of the size of the organ, and can be held there by pressure from the hand above the symphysis while it is enucleated. The operation can be done under cocaine. Rodman, of Philadelphia, holds that there are cases that can be treated with the conservative method. The operation should be done early. He holds that prostatectomy can endure perfecting. Rodman is a strong advocate of Hunter McGuire's operation in the relieves of the conditions incident to hypertrophy of the prostate; with this operation the mortality is but two per cent. He has lost but one case, and that accident was due to a hypodermic of morphine given some time after the operation. He has modified McGuire's operation by introducing into the urethra a trocar and canula until a fistula forms. Enlarged prostates which are allowed to remain may undergo carcinomatous transformation. J. S. Niles, of Carbondale, maintains that of the two dangers incident to hypertrophy of the prostate, namely, operation and the possibility of infection of the bladder, he prefers the first.

Fractures of the Head of the Radius.—Read by Dr. T. T. Thomas, of Philadelphia. He accounts for the infrequency with which these fractures occur to the fact that they are not recognized, so that they really do

occur, but are not brought to light. In the records of four of the men who do work with the X-ray he has found more fractures of the head of the radius than he was able to collect from the literature. Of the 42 cases of fracture of the head of the radius collected, only six were recognized during life. The fractures in a large majority of instances is due to a fall on the hand. While Thomas regards the X-ray as a valuable aid in making the diagnosis of the lesion under consideration, he maintains that the diagnosis can be made without this instrument. The most important factors entering into the symptom-complex by which the lesion is recognized are pain and loss of function. The pain is very acute. While there may be some disturbance in flexion and extension, pronation and supination suffer greatly; in most instances the rotatory movement is lost entirely. He announced that the majority of the surgeons advocate incision and direct fixation, but he agrees with von Bergmann, who applies a splint to the forearm; Dr. Thomas, however, allows the splint to remain in position very much longer than the author quoted; he insists that the arm should be kept in a splint for three weeks and then passive motion begun.

Address in Obstetrics.—This was delivered by Dr. Ella B. Everitt, of Philadelphia. In the preliminary remarks she stated that carcinoma penetrates the body of the uterus very much slower than it passes through the cervix. She divided the cases of carcinoma of the uterus into three groups. In the first group the results of the operation are good; in the second the results are fair; in the third the cases are inoperable. In the first group the carcinoma has not invaded the vagina nor the broad ligaments. Cachexia is not present and the health of the patient is good. In the second class of cases the broad ligaments are thickened; the peri-uterine structures are also thickened. In this group of cases the dangers of relapse become manifest. In the third group the glands are involved by the carcinomatous process, and it has invaded the peri-uterine structures. In the last group she believes palliative operation is perfectly justifiable, since they give the patient some comfort and at times relieve some of the disagreeable symptoms.

Ectopic Gestation.—Paper read by Dr. Charles P. Noble, of Philadelphia. In sixteen years he has seen some 90 cases of ectopic gestation, 42 of which were in the left tube and 40 in the right. In 6 patients there were cysts of the ovaries; 7 of the tubes were unruptured and 70 were tubal abortions. In three patients both tubes were involved at different periods of time. In nearly all instances the tube opposite the one containing the fetus was inflamed, but there never was present a pyosalpingitis. He is strongly inclined to believe that the cause, or, at least, an important factor in the causation of the condition is mechanical alteration. As for instance infection of the tube may be responsible by destroying the ciliated epithelial cells so that the ova are not passed down the tube. He advocates operation before the rupture. In 14 of the cases that ruptured there was an associated free hemorrhage, and of these 14 six died. Apparently the hemorrhage is more severe when the rupture occurs near the uterine end of the tube. In one of his cases the rupture and hemorrhage took place between the folds of the broad ligament, a condition which is rarely seen. Pelvic examination in the ruptured cases give very little information to the physician; the diagnosis depends upon the hemorrhage and the history of the patient, as the missing of a period of menstruation. Hemorrhage demands immediate operation. He removes the clots and the fluid blood, then washes with salt solution and

leaves some of this fluid in the abdomen. Drainage is dispensed with. He saw one case of intra-abdominal pregnancy. In this case he removed the sac intact. Death in ectopic gestation is usually due to sudden hemorrhage or to the delay in the diagnosis.

Address in Hygiene and State Medicine.—Delivered by Dr. George W. Wagoner, of Johnstown. He gave a detailed description of the work of the late State Board of Health in the region of Johnstown. Then told of the creation of the new Department of Health; of its composition and its duty. He pointed out that the Advisory Board—a part of the Department of Health—is a mere figure-head, and that it is really controlled and named by the Commissioner of Health. Then he pointed out the power of the last named officer. Apparently there is an inconsistency of two articles in the rules and regulations of the Department of Health; nevertheless, the Commissioner gets the big end even here. In closing his address he advocated the establishment of schools or a school by the State for the instruction of physicians in the methods of disinfection. He also laid considerable stress upon criminal abortionists, declaring that it is the duty of the Commissioner of Health to make and continue a war upon these people.

(To be Continued.)

AMERICAN PROCTOLOGIC SOCIETY.

Seventh Annual Meeting, held at Pittsburgh, May 5 and 6, 1905.

The President, J. R. Pennington, M.D., of Chicago, in the Chair.

Presidential Address.—The President's address, after the customary acknowledgments, referred to the adverse criticism which the organization and continued prosperity of this Society had provoked in certain quarters. He then proceeded to show that its existence was a logical and necessary step of progress. Special societies arise by a process of natural differentiation. This differentiation, which is unavoidable, by organization of the resulting groups, makes possible a greater definiteness of structure and function of the medical profession. Special organizations have multiplied more rapidly in the past thirty years than during any previous period, and likewise the advancement in the science of medicine has been greater during the same period. But the subject of proctology had been neglected in the past until the charlatan claimed it as his special field and the profession seemed still to be doing its utmost to support the claim. Of the sixty-six institutions belonging to the American College Association only eight make any provision for teaching proctology. The American College Association has adopted a uniform curriculum consisting of twenty-seven subjects. This extensive course provides for thirty hours to be given each to medical jurisprudence, dietetics, hygiene and public health, sixty hours each to nose and throat, and genito-urinary diseases, and one hundred and sixty hours to gynecology. No reference whatever is made to the subject of rectal diseases. "In view of the fact that the greatest breach in the science of medicine today is, and always has been, at this very point, and that it is proverbially true that because of this breach the charlatan is more securely entrenched in this than in any of the other departments, I fail to see the equity in such curriculum."

"It may be claimed by the association of colleges, and those schools that do not include proctology in their curricula, that the chairs of general surgery devote a certain number of hours to these diseases. If so, why

are there so many reputable physicians in this country who have never heard a lecture on rectal diseases nor witnessed an anorectal examination or operation." The author concludes that there is a distinct need for this Society, viz., the reclamation of this specialty for ethical medicine, and that the Society will exist, prosper and grow in influence in proportion as it meets this need.

Malignant Disease of the Rectum and its Treatment.—This was the title of a paper by Dr. G. B. Evans, of Dayton. He prefaced his remarks with a plea for thorough examination of all cases complaining of rectal symptoms. Many cases of uterine cancer have been termed "change of life," and very many cases of rectal cancer, "piles," because of neglect of this precaution. It is the consensus of opinion that cancer is at first purely local and that early recognition and thorough extirpation will cure a large proportion of all cases. Formerly the author was an advocate of colostomy in these cases, but now believes that this procedure should be reserved for those cases only which have advanced so far as to render the radical operation hopeless. The only contra-indication he would recognize as absolute is fixation of the rectum by extension of the growth to adjacent structures. The perineal and combined abdominal and perineal routes were recommended.

Ambulant Treatment of Internal Hemorrhoids.—Dr. C. F. Martin, of Philadelphia, presented this paper. He strongly defended the injection method. His technique consists of the injection of 7 to 10 minims of a 50 per cent. solution of phenol (Boboeuf) into each pile tumor at intervals of from two to seven days, depending on the effect produced. As a preliminary to beginning the injection the author recommends division of the sphincters under nitrous oxide anesthesia, much of his success with the method being attributed to this procedure. He concluded that there are not more than 15 per cent. of recurrences and that accidents and complications are by no means so frequent as after the ligature and clamp and cautery operations. In addition the method is practically painless and the patient is not detained from business.

Cases of Fecal Impaction of the Rectum.—These were reported with comments by Dr. T. C. Martin, of Cleveland. After giving the symptoms usually complained of by these patients, he emphasized the value of the proctoscope for treatment as well as diagnosis. One of the cases reported was of special interest in that the cause was found to have been a ventral fixation of the uterus in which the rectum, by means of the uterosacral ligaments, had been anchored so immovably that the patient could no longer "bear down" effectually.

Urethrorrectal Fistula.—Dr. W. M. Beach, of Pittsburgh, read this paper. After citing a number of cases and describing his method of treatment the author drew the following conclusions. (1) Urethrorrectal fistula is comparatively rare and very easily overlooked. When in doubt, use the permanganate test. (2) It generally follows prostatic abscess of gonorrheal origin. (3) It may result from traumatism—faulty use of sound, lithotomy, etc. (4) This is one type of fistula which demands suturing. The suture material should be No. 3, forty-day catgut. (5) The care of the wound should never be left to an assistant; no one can possibly know as much about it as he who made it. (6) A certain number of cases of recent urethral origin will heal spontaneously when the stricture is relieved.

A Further Contribution to the Study of Pruritus Ani.—Dr. Lewis H. Adler, of Philadelphia, presented this paper. In the author's experience the male

sex has been affected in about 95 per cent. of cases. In nearly all the cases the patients are more or less neurotic, and in the major portion, of a decidedly bilious temperament. These cases demand the removal of all exciting causes, and regulation of patients habits of life should precede and attend local treatment. The latter consists in the daily injection into the cavity of the rectum of from 1 to 2½ drams of the following mixture:

R Ext. Hamamelis fl.....	1 fluid ounce
Ext. Ergot fl.....	2 fluid drams
Ext. Hydrastis fl.....	2 fluid drams
Tr. Benzoin comp.....	2 fluid drams

Upon the first visit if the perianal skin is dry and tough the entire surface should be painted with a concentrated solution of silver nitrate (960 grains to the ounce). This may require repetition several times at intervals of a few days to restore the skin to normal. After this is accomplished the full strength citrine ointment is to be applied and renewed daily for two or three weeks and thereafter on alternate days or twice a week. This method of treatment may extend over a period of six months or even longer, but in the author's hands it has proved uniformly successful.

The Operative Treatment of Tuberculous Rectal Fistula in the Tuberculous.—Dr. J. Coles Brick, of Philadelphia, discussed this subject. The frequent association of rectal fistula and phthisis has long been recognized. Some authors claim that 5 per cent. of consumptives develop fistula, and Hartman found that of 48 cases of fistula 23 were positively tuberculous. In the author's opinion the irritating effects of ether are often responsible for the onset of pulmonary symptoms. For this reason he employs nitrous oxide and oxygen when a general anesthetic is demanded. All raw surfaces are seared with the hot iron. When the case is extensive it is better to perform the operation in stages so as to minimize the period of confinement to bed. Special stress was laid on the after management of these cases. The patient should be kept in bed as little time as possible, but no active exercise allowed until weight has returned to normal. Forced feeding and outdoor air are recommended, and daily sponging with tepid; or, if patient's vitality is sufficient, with cold water, is of great value. A weekly gain of weight is the one standard of favorable progress. In conclusion the author advised that all fistula patients be carefully examined for local and pulmonary tuberculosis and even though the examination be negative, that every case be treated as though tuberculosis were likely to be developed.

Personal Experience in the Employment of Mechanical Vibration in the Treatment of Rectal Diseases.—Dr. W. L. Dickinson, of Saginaw, said that this is a valuable method of treatment and deserving of more general use by the proctologist. A number of instances were recounted in which it had been successfully used for the relief of fissure and to accomplish dilatation of the sphincters. But the author thought that its greatest field of usefulness was in the treatment of chronic constipation and gave the technique of its application in such cases.

The Office Treatment of Rectal Diseases and its Limitations.—Dr. James P. Tuttle, of New York, read this paper. The trend of practice in rectal diseases of the present day is three-fold: First, toward a more general resort to operative measures; second, toward a wider application of local anesthesia; and third, toward a great increase in office treatment. These tendencies are due to the following facts: (1) The public as well as the profession has learned that non-

operative measures cannot be relied upon for permanent cures. (2) Dread of general anesthesia has greatly diminished, due chiefly to the improved methods in the use of ethyl chloride and nitrous oxide, alone or as adjuvants to ether. (3) Dissemination of the knowledge that most of the minor rectal surgery can be done under cocaine or other local anesthetic with as little pain and almost as little detention from business as is occasioned by the non-operative measures which give only temporary and uncertain relief. (4) Local anesthesia is being more generally adopted because it is safer, can be more quickly applied, simplifies the work, and at the same time, if properly used, permits of as thorough work as general anesthesia. Cocaine, eucaine, stovaine and sterile water, are all reliable local anesthetic agents. One per cent. solution of cocaine, eucaine and stovaine are as strong as it is ever necessary to use, and usually one-fourth per cent. is sufficient. Stretching of the sphincter under local anesthesia has heretofore been the most difficult thing to accomplish without excessive pain; but the author referred to a method he had devised by which this can be done, thus making it possible to operate painlessly on hemorrhoids, fissures, small fistulas, ulcerations, tumors low down and even low stricture. But while these things are possible the author considers certain conditions requisite: (1) Asepsis; (2) careful selection of cases; (3) complicated and plastic operations not to be undertaken; (4) when general anesthesia necessary it is better to have patient at home or in the hospital, even though it may be possible to do the work in the office.

A Contribution to the Pathology of External Piles.—Dr. Louis J. Krouse, of Cincinnati, presented this paper. He limited his remarks to the sanguineous or thrombotic variety, after a review of the literature on the subject and of the anatomy of the parts, the author drew the following conclusions: First, that the walls of the hemorrhoidal veins must undergo some pathological change before a thrombotic hemorrhoid can develop. Second, that these changes being present, any undue pressure may cause an aneurismal dilatation of the veins. Third, that when the internal coat of the vessel is altered, there is more tendency for coagulation to occur. Fourth, that sexual activity increases intravenous pressure and thus favors the condition. It is therefore a disease of adult life. Fifth, that the clot is always found in the diseased vessel and never in the peri-venous connective tissue.

A Summary of Twenty-five Radical Operations Upon the Rectum Under Local (sterile water) Anesthesia.—This paper was read by Dr. A. B. Cooke, of Nashville. The twenty-five operations consisted of: Internal hemorrhoids, 15; prolapsus ani, 2; anal fissure, 2; external hemorrhoids, 6. From this series of cases the author drew the following conclusions: (1) The method is simple, safe and effective. (2) Pain at the time of operation is exceptional. (3) Postoperative pain is far less than after the old methods. (4) Time of detention from business is reduced more than half. (5) It offers a reliable means of extending the benefits of surgery to a large class of cases which would otherwise be unsuitable for operation. (6) It robs these operations of their terrors. Summing up his personal experience with the method the author stated that it had been satisfactory beyond his fondest hopes, and if the promise of the method is realized in the future, that he would have need for general anesthesia in rectal surgery only in the exceptional case.

Officers.—The following officers were elected for the ensuing year: President, Dr. Lewis A. Adler, Jr., of Philadelphia; Vice-President, Dr. George B. Evans, of

Dayton; Secretary-Treasurer, Dr. A. B. Cooke, of Nashville; Executive Council: Dr. J. R. Pennington, of Chicago, Chairman; Dr. T. C. Martin, of Cleveland, and Dr. William M. Beach, of Pittsburg. Time and place of meeting for 1906 to be determined by the Council.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held April 26, 1905.

John B. Murphy, M.D., in the Chair.

Remarks on the Local Treatment of Gonorrhea in the Male.—Dr. R. R. Campbell, in a paper with this title, said it is unquestionably a mistake to expect that any routine treatment based on a certain theory should be followed out in every case with good results. It is not sufficient to prove that in a particular case we have to deal with gonorrhea, but it must be determined in which part of the urethra the trouble is located, and also the stage of the disease. Inasmuch as the modern treatment is mainly a local one, and as this varies according to whether we have to deal with an anterior or posterior urethritis, the importance of this demand becomes apparent. The modern treatment is largely an antiseptic one, but the agents employed have to be adopted to the stage of the process, to the degree of inflammatory reaction, to the severity of subjective symptoms, and to the intensity of microbic flora. The selection of the drug, its concentration, the frequency and duration of the application, and the method of the application depend upon the above-mentioned conditions. One of the first considerations must be to bring the antiseptic solution in contact with all the parts of the anterior membrane. In all acute cases the usual method is by the use of a small syringe. The size of the syringe must be such that sufficient fluid can be injected in the urethra to distend it. The individual capacity of the anterior urethra varies between 11 and 15 c.c., consequently the syringe must contain at least that much fluid. During the acute stage the lumen of the urethra is somewhat reduced by the inflammatory swelling. It is desirable that the first injections be administered by the physician himself, so as to test the capacity of the urethra. In deciding upon the concentration of the solution and upon the frequency and duration of the injections, the treatment should vary according to the intensity of the inflammatory symptoms and the varying sensitiveness of the urethra. An injection should never cause actual pain, and should never increase during the acute stage the inflammatory reaction and the amount of suppuration. It is advisable to begin treatment, especially in peracute cases, with weak solutions, using only three injections a day, each of the duration of about three minutes. Every following day increase gradually the strength of the solution and at the same time increase the number of injections and the length of time during which the injection is retained. In case the inflammatory symptoms are very severe, and in case the suppuration is very abundant, it is wise to begin the treatment with solutions of argyrol or ichthargan, silver salts that are very slightly irritating. After the symptoms begin to abate, protargol may be employed. In all stubborn cases where the energetic, frequent and prolonged applications of the organic silver salts do not lead to the disappearance of the gonococci, the treatment is changed to silver nitrate. In such cases a change in the method of application always improves the condition. For instance, we change from simple injections to irrigations; from irrigations with a catheter to Janet irrigations, and eventually to instillations. All cases of relapse, after

an apparent interval of cure, call for a more severe and energetic treatment. In these cases, one first has to produce a good reaction by irritating the tissues in order to make all the inflammatory foci more accessible. For this purpose dilatation is employed, if necessary, combined with irrigation, so as to stimulate the mucous membrane. In cases that have had no treatment from the start, or in cases that were not properly treated and come under observation in a semi-chronic stage, it is a good plan to start some reaction right away by irrigating with a weak silver nitrate solution, and afterward employ that treatment which seems best suited for the inflammatory symptoms and microscopical findings.

Some Complications of Gonorrhea.—Dr. William T. Belfield, in a paper on this subject, said that objection was made to the revival of the ancient teaching that gonorrhea was never cured; that the patient once infected is always infectious. This teaching was popularized in this country by Noeggerath, years before the discovery of the gonococcus, and therefore at a time when the eradication of the infection could not be demonstrated. The work of numerous investigators, both in the laboratory, and especially in private practice, has abundantly proven the absolute disappearance of the gonococcus of a few weeks or months after infection in the large majority of infections, as well as its persistence for years in sporadic cases. The few should not be mistaken for the many. Folliculitis—abscess of a follicle or lacuna—is an occasional feature of gonorrhea, resulting sometimes in an opening through the skin with fistula formation. The latter may heal spontaneously or require operation. Strictures are results of gonorrhea best treated, as a rule, by gradual dilation. Internal urethrotomy is permissible in the first half inch of the urethra, external urethrotomy in the perineal urethra. In the portion of the urethra surrounded by the cavernous bodies, internal urethrotomy is a needlessly dangerous substitute for gradual dilatation. Warts (papillomata) are not infrequent results of gonorrhea, in the urethra as well as on the glans penis. They are usually removable by the application of lactic acid. Exudation into the veru montanum may be followed by impairment of the sexual power, marked by imperfect erection and premature ejaculation. Apparently the nerve endings in the veru montanum are as necessary to perfect sexual function as are the nerve endings in the Schneiderian membrane to the olfactory function; and the damage done to this structure by the gonorrheal inflammation may impair that important function.

Thus impotence is curable, if treated within a few months; otherwise it may become permanent through atrophy of the nerve endings. Sterility, too, may result from gonorrhea, even when the sexual power is not impaired. This results, not merely from double epididymitis, but also from damage to the prostatic follicles, whose secretion is necessary for the movements and nourishment of the spermatozoa. After a gonorrheal attack, the semen may contain only motionless spermatozoa, useless for the fertilization of the female. Contracture of the vesical neck is a not infrequent result of gonorrhea, usually confounded with prostatic enlargement in these days of fever, or prostatectomy. It is found in men of all ages; even in women; and it is cured not by prostatectomy, but by dilation or incision of the vesical neck (with the cautery through the perineum). These cases were often cured by the antiquated Bottini operation. Pus infection of the seminal vesicles and of the epididymis often continue into the chronic state. The epididymis can be incised

and drained, the vesicle irrigated from the vas deferens, as the author has recently shown.

Impotency and Sterility Due to Gonorrhea.—Dr. Frederick Leusman read a paper with this title. The daily experience of every practitioner shows a wide distribution of gonorrheal infection, children and infants are not excepted. Modern travel leads to infection of even the smallest hamlet. Whether gonorrhea is a disease of civilization, like lying is said to be, the speaker did not know. Some savage races shared the women in their tribes, while equally savage races placed the death penalty on any one that infringed on the marital privileges of their monogamous marriages. Present-day experience plainly shows that promiscuous intercourse leads to disease of both body and mind, mostly gonorrhea, while single wedlock is the only pathway towards happiness, order and culture. Impotence and sterility are the wages meted out to those that disregard the laws of nature by thus preventing their reproduction. Preventative treatment must begin with infancy and youth. For his part, he believes that the proper plans in detail can be formulated by physician and teacher.

Gonorrheal Urethritis and Cystitis in the Female.—Dr. Gustav Kolischer, in a paper with this title, stated that gonorrheal urethritis in women was very common. He advanced reasons why the disease was not frequently recognized, and among them he said that a great many cases of gonorrheal urethritis in women cause no severe subjective symptoms. A large number of cases of gonorrheal urethritis in women are caused by the first sexual intercourse. There is inflammation of the urethral mucosa in some cases, and this is taken by young girls or married women as the natural consequence of intercourse. The discharge is not as easily or as early recognized in the female as in the male. Infection of the urethra is not only important on account of the subjective symptoms, but because the gonorrheal urethritis in a woman is a permanent menace to the other organs. A great many cases in which infection occurs in the urethra may lead to serious consequences later on by involving the pelvic organs. It was taught and believed for years that if gonorrheal infection occurred in the female urethra, this infection would disappear without special attention being directed to it after a certain time by the attending physician. This is erroneous. One of the conditions which proves that such a supposition is wrong is that we find so frequently in young women strictures, old infiltrations which have become organized and finally are transformed into cicatricial or fibrous tissue. As a rule, gynecologists see only cases of chronic gonorrhea in women. In this stage less attention is paid to the urinary organs, and attention is concentrated on the pelvic or genital organs. The first infection usually takes place in the urethra and around the urethra in the vestibule, but not in the vagina or in the cervix. After the usual period of incubation, all the signs of gonorrheal infection of the urethra are noticed—pain during urination, swelling, even ectropium of the lips, with a discharge of pus which contains gonococci (intracellular). Four or five days later, corresponding to the gonorrheal infection, the vulva becomes infected. A week afterward there is a purulent discharge from the vagina containing gonococci. Later cervicitis is observed, which produces a secretion infested with gonococci. When a woman complains of symptoms

referable to the urinary and genital organs, the physician should find out whether he has to deal with gonorrhea, and if so, prevent the spreading of the gonorrheal process to neighboring structures. The main object should be directed toward preventing the spread of the infection, which can be accomplished by antiseptic irrigations of the vulva and vagina. This is best done by the use of non-irritating silver salts. These are the surest germicides. A part of this germicidal silver salt solution may be retained in the vagina without causing any reaction, that is, depriving the underlying tissue of the protection which the epithelium furnishes. To prevent the spread of infection to Skene's glands, to the crypts or mucosa of the vulva, the best way is to insert between the labia a pad which is saturated with one of the solutions of the silver salts. It is best to use argyrol, first, because it can be employed in concentrated solution without producing any erosion of the epithelia. This pad should be changed frequently. One should not advise a woman to irrigate her own urethra, or resort to injection of the same, as is done in the case of man, as it is impossible for her to do so without great risk. The clinical picture of gonorrheal cystitis is established after examining the large number of cases of this kind, and finding that the cystitis corresponds with the picture. The speaker excised a part of the membrane of the bladder, which he recognized as having been affected by gonorrhea, and Wertheim examined the excised piece of mucosa, finding that the gonococci had not only invaded the epithelium, but the submucous layer, and the cavity and crypts were literally teeming with gonococci. This was proof of the existence of gonorrheal cystitis. He described the clinical picture of gonorrheal cystitis as seen on cystoscopic examination. The frequency of gonorrheal cystitis in woman is due to the fact that it is frequently overlooked, so that by and by the ureters and the pelvis of the kidneys are involved.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held September 13, 1905.

The President, James M. Anders, M.D., in the Chair.

Anorexia in Infants in Hot Weather.—Dr. Maurice Osteimer called attention to this condition, in which often the only symptom was the refusal of the child to take the proper amount of nourishment. To find cause for this loss of appetite, when there are no symptoms, he said was difficult and there must be considered the possibility of functional derangement of the gastro-intestinal, or of the intestinal tract more properly. In one case an increase of the proteids in the milk mixture, up to two per cent. helped the child, but only after two months did the child take more food at each feeding. In some cases he stops all food and gives barley water and whey. He especially called attention to the fact that anorexia occurs only during hot weather and that often it is cured only by removal to a cooler climate.

Rest in Tuberculosis.—Dr. William B. Stanton considered the treatment of tuberculosis under the heads of: (1) Abundant food; (2) fresh air; (3) regulation of the exercise. He pointed out the danger incident to injudicious exercise. The amount of exercise to be taken, he said, depended upon temperature, pulse rate, respiratory rate, degree of emaciation, existence of complications in heart, kidneys,

bladder, intestines, etc. Constant temperature above 100° F. or elevations to this extent in usually afebrile cases, call for absolute rest in bed. Remittent temperature when above 101° F. in the afternoon, also indicates rest. If the temperature is only 100° F. the patient may be allowed up, and exercise may be begun when the temperature is below 100° F. A pulse rate of 120 in the morning indicates rest. With a pulse rate of 110 or under the patient may sit up, and exercise may be begun when the pulse rate falls below 100 when resting. Breathing rate, he said, depended usually upon the degree of involvement and the competency of the heart. Marked emaciation contraindicates exercise even if other signs are favorable. Rest should be insisted upon until a satisfactory gain in weight is obtained. The complicating disease should decide the amount of exercise, bearing in mind that rest is even more necessary where two depressing influences are present. He recommended walking as the best and most easily regulated form of exercise. The gait should be slow and at first the walking should be done only on the level ground.

The Committee of Three appointed by the society to aid in the prosecution of criminal abortionists reported that thirty cases had been investigated, and that each of the thirty persons had either left the city, was under police surveillance, was a fugitive from justice, was awaiting trial, or was in prison. As an additional example of results, it was stated that the Sunday edition of one of the newspapers, formerly carrying from ten to seventeen advertisements of criminal abortionists, no longer printed such material.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held Tuesday, September 19, 1905.

The President, A. Bern Hirsh, M.D., in the Chair.

Important Changes in the Pharmacopœia.—This paper was read by Dr. E. Q. Thornton, who stated that owing to the death of the chairman of the committee appointed by the convention at Washington in 1900, Dr. Rice, the completed work had not been published until August 1, 1905. He considered the subject in considerable detail and under the following headings: (1) Articles dismissed, of which there are 155, consisting principally of obsolete substances; (2) articles added, of which there are 117, giving in detail the composition and names; (3) changes in official names, which had been made to conform as near as possible whenever practicable to the true chemical name; (4) changes in the English names; (5) changes in strength of preparations, giving a tabulated list of the strengths under the Pharmacopœia, and a comparison with the new edition; (6) statement of the average doses of the various drugs; (7) changes in the solubility of the various drugs on account of the change in the thermometric degrees at which the solubility was determined.

The Medical Chemistry of the Pharmacopœia.—Dr. Henry Leffman discussed this subject. The use of the Pharmacopœia to the physician, the analytical chemist and the druggist was dilated upon, and he felt that one effect of giving the dose of the various remedies would be to encourage the putting up of medicines by druggists, without a physician's prescription. One point he viewed with disfavor was the adoption of an atomic body based upon the hydrogen one system, instead of the oxygen sixteen system, which he viewed as particularly unfortunate

because of the fact that the oxygen sixteen system was the one in which all the statistics of the Bureau of Agriculture were furnished. Another point which he viewed with disfavor was the introduction of a large number of manufactured substances, or substances made by the combination of other drugs. He objected to the use of the genitive case for the names of chemical solutions, such as carbonate of soda, and traced the origin of these terms from the French language in the latter part of the eighteenth century. He referred to the unnecessary complications caused by the distinction between ordinary water and distilled water, and the test for nitrites in distilled water, which he said was of such a delicate nature that it was not practicable, particularly with the general practitioner. He particularly deprecated the introduction of the liquor antisepticus and headache powders, but recommended the changes from hydrochlorate to hydrochloride and naphthol to naphtholine.

Dr. Henry D. Wieder referred to the difficulty of the physician becoming acquainted with the changes in strength, etc., by the new Pharmacopœia, and asked what method was adopted for informing them in this direction.

Dr. Frank C. Hammond referred to a case in which he had ordered tincture of lobelia, writing his prescription in accordance with the new edition, which produced severe and persistent vomiting, and upon inquiry he learned that the druggist had filled it according to the old Pharmacopœia.

Dr. W. Hershey Thomas asked which method would be pursued by the druggist in refilling prescriptions given before the new Pharmacopœia was adopted.

Dr. Ellis E. Given stated that he had been informed by a druggist that he had filled all prescriptions dated before September 1 according to the old Pharmacopœia, including renewals put up after that date, and that all prescriptions subsequent to that would be put up under the new Pharmacopœia.

Dr. A. Bern Hirsh stated that he had been informed by a druggist in his vicinity that he intended to use the system outlined in the 1890 Pharmacopœia for some time to come. He felt that the change had been sprung upon the profession too suddenly and that mention should have been made of it and notice given through the prominent medical journals in order to permit the physician to familiarize himself therewith.

Dr. Henry Leffmann, in speaking of the criminal liability of druggists not compounding prescriptions according to the new Pharmacopœia, referred to a decision of the Supreme Court of Ohio in a prosecution brought after the 1890 revision of the Pharmacopœia had come out in 1893. It was decided that an Act of the Legislature could have no reference to anything published after the Act was passed, and therefore the conviction could not be maintained.

Dr. E. Q. Thornton, in closing, stated that he felt the reason that the Pharmacopœia was so little representative of the medical profession was due to the lack of attendance of the members of that profession appointed. In regard to the changes, he stated that it must be remembered that it becomes necessary to throw out obsolete drugs, and the only way he knew for physicians to become familiar with it was to have it in their libraries. He stated that Bulletin No. 23, recently issued by the Treasury Department, Marine Hospital Service of the U. S., entitled "Changes in the Pharmacopœia," had consid-

erable information on this subject. The mere fact that a drug was mentioned in the Pharmacopœia, he said, did not necessarily signify either that it was of value, or was endorsed by those engaged in the preparation of the work, but merely that there was a demand for it.

Dr. A. Bern Hirsh suggested the advisability of separating the drugs from the combinations and inserting them under separate headings. He also felt that in future revisions it would be best to have at least one-half of the committee of active practitioners.

BOOK REVIEWS.

ARNEILL'S EPITOME OF CLINICAL DIAGNOSIS AND URINALYSIS. A Manual for Students and Practitioners. By JAMES R. ARNEILL, A.B., M.D., Professor of Medicine and Clinical Medicine in the University of Colorado; Physician to the County Hospital and to St. Joseph's Hospital, Denver. Lea Brothers & Company, Philadelphia and New York.

IN this little volume, a large amount of useful and thoroughly up-to-date knowledge is condensed within 244 pages. It is particularly gratifying to note that illustrations, which form so valuable a part in a treatise of this nature, occur on almost every page. In looking over the different chapters, we find that the limitations of the Widal test have perhaps not been emphasized sufficiently. The Ficker test is described, but not the test with formalized bacilli, even though the former requires an expensive culture made by a secret process, while the latter can be made in every bacteriological laboratory, and is in every way as good. The method of making blood-cultures, the subject of trypanosomiasis, spotted fever and *Uncinariasis* are described carefully, as well as Cryoscopy, even though this seems to be "going out of fashion." We are glad to see that the feces are not neglected, though no mention is made of the aloin reaction for the detection of traces of blood in suspected cancer or ulcer. Under urine, altogether too much space is devoted to the "pancreatic reaction." The Sahli test meal is neglected by this, as well as most other books on laboratory analysis, yet more knowledge of the function of the stomach can be obtained than with the simpler test-meals.

THE RÔLE OF MODERN DIETETICS IN THE CAUSATION OF DISEASE. By J. SIM WALLACE, M.D., D.Sc., L.D.S., Hon. Dental Surgeon, West End Hospital for Nervous Diseases, and Assistant Dental Surgeon National Dental Hospital, W. Bailliere, Tindall & Cox, London.

THE essays of this little volume have mostly appeared in recent years in such important English medical journals as the *British Medical Journal*, *The Lancet*, *The Medical Press* and various English dental journals. Some them, however, are written for this collection. Dr. Wallace has one important idea that he brings out very forcibly; this is, that the teeth of children decay sooner, the second teeth are not so well formed, the jaws are not so well developed, and as a consequence there may be narrowing of the respiratory passages and tendencies to mouth-breathing, because children are not asked to chew their food, but for too long in their early years are fed on various liquid foods that do not require mastication. Undoubtedly he makes out a good case, and his ideas are very clearly expressed. There is not the air, either, of his book being merely the fad of a specialist, for it is full of practical suggestions of many kinds.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, OCTOBER 14, 1905.

No. 16.

ORIGINAL ARTICLES.

THE TEACHINGS OF FAILURES.*

BY FRANK LE MOYNE HUPP, M.D.,

OF WHEELING, W. VA.,

ATTENDING SURGEON TO THE CITY HOSPITAL.

We will all agree with Dr. M. H. Richardson, of Boston, when he says: "Of all postoperative disasters, the most distressing and deplorable is

two attacks of fainting while in bed. One of these attacks followed the exhibition of some gold preparation, which had been given under the direction of another physician, for the relief of her morphine habit, and whether the syncopal attacks were a result of the gold injections or not, I am not prepared to say. At any rate, three days after the operation, following an uncomfor-

[illegible][illegible][illegible]

ened the tendency to bleeding, both at the time of operation and subsequently. The profession is indebted to Dr. A. E. Wright for this valuable discovery. His researches on the coagulability of the blood were published in the *British Medical Journal*, in December, 1891. Robson observes that the calcium may be continued, either by mouth or by nutritive enema, for some time with advantage. It is needless to add that every bleeding point should be securely tied, rather than to trust to forcipressure for hemastasis.

Dr. Charles B. Nancrede, of Ann Arbor, Mich., in the discussion of Dr. Richardson's paper on "Certain Unavoidable Calamities following Surgical Operation," read before the American Surgical Association in June, 1904, writes of two cases which terminated favorably. In one case the patient was a badly jaundiced man, upon whom he had recently operated. Following the operation he bled for eighteen days, and a fatal termination seemed most probable. But after the exhibition of large doses of calcium chloride, which had also been used some time previous to the operation, and along with it gelatin injections, the man made a good recovery.

The other patient was a woman whom he had treated in the same way. She bled to an alarming extent for a number of days after the operation; but the hemorrhage gradually ceased and she recovered so far as it was concerned.

Dr. Nancrede did not know whether the injection of a sterilized solution of gelatin in normal salt solution into the wound had any effect in saving the lives of these patients; but certainly after the injection in both cases the bleeding began to stop.

Case II.—D. J., aged thirty-eight years. Patient had suffered for several years with symptoms of stone in the kidney. Incision had twice been made by other operators, with the expectation of finding the cause of the distressing pain. He was admitted to the City Hospital, and after the usual preparation, the offending organ was located, with much difficulty, owing to its faulty position high up in the splenic region. Nephrotomy was done, and a large stone was removed from the renal pelvis. The bleeding was unnaturally profuse, and required a tamponade of gauze carried well down through the cortex into the pelvis before it was arrested. The case progressed favorably until the fifth day, at which time, because of a slight elevation of temperature and some indications of suppuration about the gauze, the writer was led to trust the impression created in similar cases and removed the plug. As will be shown, this was a fatal error. The first part of the tampon was withdrawn with very little resistance, adhesions rather firm in character seemed to engage the meshes of the last bit of gauze, and immediately with its removal, there was a deluge of blood. A large strip of styptic gauze was quickly reinserted, and firm pressure made over the wound. The hemorrhage seemed to be for the time being under con-

trol; but the gradually quickening pulse, the restlessness, air hunger and sighing respirations foreshadowed the unwelcome truth of a fatal internal bleeding. The patient was removed to the operating room, the wound reopened under ether and a ligature quickly applied to the pedicle of the kidney. The extravasation of blood had been enormous. Despite the fact that every effort was made to combat the shock, the exsanguinated patient died four hours after the tampon was removed.

There may be a profound satisfaction and a pleasure in the consciousness of having done what one believes to have been right, in this or in any case; but the blunder here committed was, the refusal of the writer to have profited or to have been profoundly impressed by a similar fatal accident, which occurred in the practice of one of the attending surgeons to the Presbyterian Hospital, New York, some ten years before, while an interne in that institution. If there is any little defense of our position, one might say that the integrity of the renal blood vessels may have been in as much jeopardy at the expiration of ten days as they were on the fifth day, or at the time the gauze was removed. This point the writer trusts will be brought out in the discussion.

Case III.—Another fatal result, which was contributed to by an alarming hemorrhage, occurred in the writer's service as House Surgeon to the Presbyterian Hospital, New York City, in 1891, after the removal of a large suppurative mass, in a case of double inguinal adenitis. When about ready to apply the bandage an apparently insignificant piece of tissue was raised with the anatomical forceps, and cut away. In so doing the wall of the femoral vein was opened, and the result, almost appalling, need hardly be described. There were absolutely no anatomical landmarks, as the entire environment had taken part in inflammatory condition.

While digital compression was made, in the face of many difficulties, the vein was tied above and below. When this was accomplished and the compression removed, the bleeding seemed as profuse as before the ligatures had been applied. This was because the traumatism had been inflicted at a point opposite the entrance of the profunda femoris and deep external pudic veins. After a tedious dissection, ligatures were applied to these muscular tributaries and the exhausted patient removed to his bed. Artificial heat was applied to the limb which had been deprived of its circulation, and the subsequent progress of the case seemed to be satisfactory enough for one week, at which time he died suddenly from epidemic pneumonia, which prevailed in the Presbyterian Hospital at that time.

The whimsical Burton, in his "Anatomy of Melancholy," is said to have written: "Every man should know his own but not others' defects and miseries; it should be the nature of all men to reflect upon themselves, and their own

misfortunes; to recount their own miseries, and not their good gifts, fortunes and benefits; to ruminate on their adversity, but not once to think on their prosperity; not what they have, but what they want." Skerritt puts it this way: "If failure opens our eyes to our deficiencies, if it makes us more critical, more careful to avoid unscientific methods of observation and research, if it leads us to greater diligence, thoroughness and honesty in our work, then, it will not have come to us in vain."

Case IV.—The following case illustrates the errors in diagnosis one may fall into by accepting the word of a patient or his friends and omitting to take a careful history or enter into a painstaking examination for himself. Several years ago the writer was asked to visit a patient in a neighboring town, who was said to be suffering with cancer of the uterus. The patient had given a history of having suffered much pelvic pain, had lost flesh, and had an offensive leucorrhea, with occasional hemorrhages. As the room was entered one was struck by the strong, sickening odor of decomposed organic matter. A hurried examination was made and a sloughing mass was encountered very much resembling the condition one might find in an advanced carcinomatous necrosis of the cervix, with extensive filtration of the vaginal environment; even to the touch of the finger the tissue seemed to break down.

At any rate, the writer accepted the proffered diagnosis as the cause of the woman's suffering; consigned her to that hopeless doom, with its crushing mental anguish and to morphine with its fathomless Inferno. A kind Providence directed this sufferer into more exacting hands and the correct diagnosis was made of a large sloughing submucous cervical myoma. The tumor was removed in due time, and to-day the woman is enjoying good health.

The error here came as a result of a hurried examination. Had curettings been obtained, the submucous myoma here present would have shown perhaps a slight atrophy, and probably some small-celled infiltration of the cervical mucosa; whereas had an adenocarcinoma existed, the characteristic epithelial proliferation would have been demonstrated (Cullen).

Since writing the above there has come to the writer's attention the report of a series of several hundred cases of pancreatitis with fat necrosis, analyzed by Preble, of New York, illustrating how errors in diagnosis may be made in this department of our art. In only 10 per cent. of the cases in question was a lesion of the pancreas even suspected. The diagnoses of peritonitis, intestinal obstruction, perforation, were made and were right as far as they went. Then, still, in another direction, there are operations made on false findings of cuttings and scrapings, when opinions based upon these diagnoses may lead to surgical intervention either too radical or not radical enough. There is clearly a lesson here

for the surgeon and physician which has an immediate practical bearing.

Case V.—Foudroyant and fatal sepsis following on the fifth day after supravaginal hysterectomy. Tuholské³ points out that there may be possibly something in these fatal cases we cannot gauge. Not all patients behave alike under the knife. Some of them will die, and we cannot measure up the cause. We know there is a peculiar nerve element in some of them, which is not present in others. Some patients stand an anesthetic poorly. If the individual idiosyncrasies are studied with greater care, if the little peculiarities are watched more closely, there would be fewer calamities. In the writer's case, every attention was paid to the details of asepticism. But, as Dr. Richardson enjoins: "Perfection of asepsis is of little moment if the patient dies."

On the evening of the fourth day, the patient seemed to be overwhelmed; the symptoms were not unlike those of shock, excepting that there was an elevation of the temperature. Death occurred on the evening of the fifth day, of what seemed to be profound sepsis, almost before the challenge could be taken up by the phagocytic sentinels of the peritoneum. An autopsy demonstrated a beginning fibrino-purulent deposit covering the sutured margin of the broad ligament with its point of maximum intensity opposite the entrance of the cervical canal. The general cavity of the peritoneum did not seem to be seriously invaded.

*Case VI.*¹¹—While touching upon these so-called unavoidable calamities in surgical work the following interesting case, presenting a unique feature in the mortality factors of appendicitis, may be entered here to demonstrate the ease with which one may go astray on the question of prognosis: A boy of fourteen years of age was admitted to the writer's service in the City Hospital who had been treated by his family physician for typhoid fever for a period of eleven days prior to admission. His symptoms seemed to have been typical until the tenth day, when there was discovered an induration and localized tenderness in the right iliac region. On the day of admission, May 6, under chloroform narcosis, the usual incision was made, and about an ounce of very offensive pus was removed from the retrocecal region. In the washing there escaped a tubular segment of the appendix vermiformis, much resembling a macerated piece of macaroni. A suspiciously dark area was detected over the cecum, but because of the profoundly collapsed condition of the patient no further interference was deemed advisable. Well-directed drainage was established and the patient removed from the table. Forty-eight hours after the operation the dressing was repeatedly saturated with a dark, offensive, coffee-ground fluid, and at times there seemed to be some fresh-looking blood with the exudate. The drainage strips were removed, and there welled from the wound a quan-

tity of decomposed dark blood clot. Collapse and death followed three days after the operation.

The real interest in this case centers in the autopsy. The cecum, buried in a mass of rather firm adhesions, was the seat of a gangrenous perforation sufficiently large to admit two fingers. No remnant of the appendix was discernible. A very extensive extravasation of old decomposed blood was found distending the cecum, ascending colon and part of the ileum. Peyer's patches exhibited the typical typhoid lesion, and an eroded vessel, in the base of one of these ulcers, demonstrated the seat of the hemorrhage and the cause of death.

*Case VII.*⁴—Certainly that English physician was not remote from the truth when he said that "Growing experience tends to undermine the simple faith with which the young practitioner emerges from his student days"; and as Shady wisely reflects, "Unfortunately for the mental peace, the wider the experience becomes, the more do certainties give place to probabilities. In forming an opinion it is always wise to give due weight to possibilities, as well as to probabilities, and to make full allowance and preparation for the unexpected." Especially is this true in surgical affairs.

The case in question had all of the well-defined indications of a tuberculous arthritis of the knee. Exploratory arthrotomy was proposed, with the distinct understanding that no more serious operation would be attempted. After the articular surfaces had been sawn through it was demonstrated that the disintegrated and pultaceous relic of a once useful hinge could in nowise be saved; that excision was entirely out of the question; and to even a casual observer it was evident that amputation offered the only salvation for the woman's life and health. A hurried conference was held with the husband and the attending physician, and, armed with the supporting opinion of several of my colleagues on the hospital staff, amputation was performed at the middle third of the thigh. In the following five weeks of treatment the patient refused to speak to the man who had promised to save her leg. That serious medicolegal proceedings were averted was due to good luck rather than to any great amount of diplomacy on the part of the operator.

Moral: Be slow and cautious in making promises, then it will be no difficult thing faithfully to keep them.

Concerning the legal points involved and touching upon this important subject, a recent lay journal⁵ tells us that where the patient is a child the consent for operation which the law requires must be obtained from the parents, or from some person standing in the relation of parent or guardian to the patient. When the patient is a married woman it has been held in some cases that the consent of the husband is necessary; but this proposition has been denied

by the Supreme Court of Maryland in a leading case on the subject.

"In this case," writes the editor of the *MEDICAL NEWS*,⁶ "the surgeon operated for a tumor of the breast which was supposed to be benign, but which proved to be malignant; upon the discovery of the true nature of the growth, amputation of the breast was performed."

The husband testified that he supposed the operation was for the purpose of removing an innocent tumor, and that he never would have consented to the removal of the entire breast. The Court said that the consent of the wife and not that of the husband was necessary. The professional men whom she had called in were the proper persons to determine what had to be done.

They could not, of course, compel her to submit to an operation, but if she voluntarily submitted to its performance her consent would be presumed.

A simple and practical method, avoiding all questions in cases of the character we have discussed, is suggested by Dr. Foster, in a communication to the *New York Medical Journal*, in which he says that it would probably be wise for the surgeon to provide himself with a blank form, which, when properly filled out, signed by the patient and properly witnessed, would give him authority to do whatever he believed it necessary and proper to do in each individual case.

You have heard how one can easily be led astray in the direction of a faulty prognosis, and that, too, over a part of the anatomy so easily seen and felt as the knee-joint. Let us turn our attention now for a few moments to the subject of diagnosis of abdominal tumors. Richard Bright,⁷ that matchless English writer and investigator, as far back as 1827 had this to say: "The sources to which we turn for evidence respecting the existence and nature of abdominal tumors are: The form and appearance presented to the eye; the form still further discovered by the touch; the resistance ascertained by pressure; the sounds elicited by percussion; and, in a few instances, the sound perceptible to the ear, either alone or by the aid of the stethoscope; and, besides these local and physical signs, we look to the general condition of the system, and the various excretions, as rendering us most important assistance, and being frequently indispensable toward the formation of a tolerably correct diagnosis."

How frequently the accuracy of these statements, written three-quarters of a century ago, has been tested, every one of you know. Frantz Howitz,⁸ of Copenhagen, in a recent paper entitled, "Fragments of My Surgical Mistakes," takes his reader back to 1884, when he reports the confusion arising between anomalous forms of the pregnant uterus, and ovarian cysts (before the International Congress at Copenhagen). He states that a pregnant uterus with an elongated cervix has caused him to make false diag-

noses of ovarian tumor or uterine fibroma. These three conditions—pregnant uterus with some anomalous forms, ovarian tumors and cysts, and uterine myoma—have evidently been the source of much confusion to him during his career as a surgeon, and he cites a number of interesting illustrations. Whereas he has operated on 500 myomatous uteri, he declares that, as a general rule, pregnancy cannot be diagnosticated in such uteri. Tubal pregnancy he has more than once confounded with ovarian cyst.

The author seems fond of saying: "Only a year ago," he made this or that mistake; as if to imply that experience does not make one immune. On several occasions he has confounded renal and ovarian tumors. In this connection he adduces the fact that when Spencer Wells performed his first laparotomy for supposed ovarian cyst, the condition actually present was hydronephrosis. This same author had a case in which he mistook hydronephrosis in a floating kidney for an ovarian tumor with a long pedicle. About a year ago Howitz opened the abdomen after a diagnosis of unilocular ovarian cyst, and found only ascites. Several times when he had diagnosed ovarian tumor, operation had revealed tuberculous peritonitis, and once a large mesenteric tumor. On one occasion he mistook a distended bladder for a collection of abdominal fluid. He tapped once or twice before finding his error. "Here," he writes, "we have only a comedy; but it might easily have turned out a tragedy."

Case VIII.—In May, 1902, Mrs. T. E. came under the observation of the writer, with the following history: She had not menstruated for ten months. For the past four months she had suffered much with abdominal pain, and had had attacks of nausea and vomiting. There has been an irregular enlargement of the abdomen, and there were felt occasional slight fluttering movements. The chief symptoms, however, and those for which she came for treatment, were the sharp attacks of abdominal cramps, the nausea, vomiting and epigastric pain and other symptoms, which had incapacitated the patient and rendered her life miserable.

An examination revealed a patulous os; and, what seemed a most extraordinary state of affairs; in the cul-de-sac the foot of a child could be unmistakably felt through the thin vaginal wall. Bimanual examination demonstrated the presence of a large mass in the left side, freely movable within the abdominal cavity and very much resembling a four months' abdominal gestation. A soft blowing sound could be heard synchronously with the maternal pulse, but no fetal heart was discernible. That the woman was pregnant there did not seem to be the shadow of a doubt; but whether the child was within the uterus, or floating within the abdominal cavity, was not so easily decided. It might be noted here that suppression of menstruation is not associated so regularly with abdominal as with normal pregnancy, having been noted in

only 43 per cent. of the cases observed by Martin, Orth and others; and this observation contributed to the doubt that already existed.

One of my colleagues on the hospital staff made a most painstaking examination and concurred in the opinion held by the writer, that the case was one of abdominal pregnancy. We had seen such a case delivered at term by laparotomy, at the City Hospital, in the services of Dr. E. C. Myers, and the writer chanced to be familiar with the exceptional case reported by Both, in which a fully developed fetus lay perfectly free in the abdominal cavity after removal, all that was left of its membranes being found in the tubal sac. Osler once said that "desperate cases require desperate remedies," and in no single instance in the series of abdominal cases reported by him were the chances of the patient damaged by an exploratory incision; remembering this, and influenced by the earnest petition of the patient, abdominal section was performed.

There was found a four months' pregnant uterus, normal in every particular; the mistake acknowledged, and the abdomen closed. The patient, fortunately, made an uneventful recovery, and was delivered of a healthy child five months later.

Case IX.—One of the most depressing calamities that may come to the surgeon in the course of his work, certainly one of the most mournful in its after-effect, and receiving, even though not always meriting the most hostile criticism, is his failure to remove a sponge from the abdomen following a laparotomy. This unpardonable blunder was committed by the writer following an abdominal section, for double pyosalpinx, about ten years ago. Aside from a slight rise of temperature and some pelvic pain which was thought to have been due to a reaccumulation of pus in the cul-de-sac, no serious consequences arose. Under local anesthesia the posterior pouch of Douglas was incised over a fluctuant point, on the fifteenth day following the operation, and a small gauze sponge, which had been used on a stick, was removed, and with it a small quantity of pus evacuated. The patient, fortunately, made an otherwise uneventful recovery.

Riese,⁹ of Berlin, in writing of the fate of the compress left within the abdominal cavity, speaks of Neugebauer, who found that this accident had occurred ten times in one thousand laparatomies done in Warsaw—one in every hundred. Riese has seen it occur but twice in nine hundred, or one in four hundred and fifty. Mikulicz in nine hundred personal laparatomies never experienced this accident. A research into the literature made by the Berlin surgeon resulted in finding forty-one cases.

Despite all care on the surgeon's part, Riese contends that this accident must be constantly expected by operators doing abdominal work. This fact should certainly lead to a revision of the statutes as to penalties for unavoidable accidents. The surgeon cannot be expected to act

with the precision of a machine. The author of the paper in question implies that to make a surgeon liable for this and similar accidents is to put a premium on mere good luck at the expense of skill and experience.

While the manner of avoiding certain of the distressing calamities which have been spoken of may be apparent, there is one thought which should be presented, although it may seem commonplace and perhaps not germane to our subject. Since sudden and unforeseen death in people not known to be ill, and those who are attending to their daily labors is common enough, it would appear that the surgeon should be familiar with the way in which such death occurs, inasmuch as it would be almost certain to occur in the same manner after operative work. By paying rigid attention to the personal history of the patient and to all the resources of diagnosis, by the recognition of conditions which may predispose to, the symptoms which may portend, the means which may prevent, and the course which may retrieve disaster (Richardson), he should be able to exclude some of these cases as inoperable.

Lochte¹⁰ has recently written on this subject, and his paper is based on autopsies of one hundred and one cases of sudden death. It is not fair, he states, to claim, as is popularly done, that such cases are stricken down in the bloom of health. In a majority it would have been possible for an examination to have determined that something was wrong. He seems to indicate that some of the patients knew that their physical condition was not up to par, but made light of it. Still they were evidently in apparently good condition.

The first cause, in frequency, of such death is disease of the heart, really of the coronaries, with thirty-one victims. Of great importance is the fact that these people were young, only one over fifty years of age; not one had reached the fatal age of fifty-five, pointed out by Dr. J. L. Dickey, in his interesting paper on angina pectoris, a few years ago.

The second cause in frequency is alcoholism, with twenty-five cases, the great majority being chronic.

The third class the author styles "walking cases" of acute infectious diseases, with twelve victims—six pneumonia, two typhoid, one meningitis, one ulcerative endocarditis, one erysipelas, etc.

The rest of the material included seven cerebral apoplexies, seven cases of aneurism and other diseases of the vessels, eight cases of pulmonary conditions, and the rest unclassified. In this series the males greatly outnumbered the females.

"So long as we are human, we must expect occasionally to meet with failure and disaster in the practice of surgery, and that in spite of every precaution. In the great majority of cases failures and disasters may be traced to some error

of observation, of judgment, or of technic. In many instances, however, the most rigid reviews of the case will fail to show the error by avoiding which a similar disaster may be prevented. Disasters occurring as the result of causes which cannot be detected may be classed as unavoidable, and yet in a strict sense they properly are avoidable. Indeed, it would be difficult to imagine a combination of circumstances, however disastrous, which by an accurate foreknowledge could not be successfully provided against."¹²

If a review of such bedside reports as these, dolefully revealing, as they do, errors of judgment or faults of omission and commission, lead to a general discussion, the writer will feel that his confessions have not been made in vain. A paper of this kind may contain and bring out some unwelcome truths, yet our lamented medical friend the "Autocrat of the Breakfast-table" once told us that, "negatives multiplied into each other change their sign and become positives," and it is from these very negatives that we mean to get our help. The writer desires to invite your criticism, gentlemen, hostile though it may be, for the square of fault-finding sometimes turns out to be the same thing as eulogy.

If your heart is in your work, if you love your profession with a sincerity and a cordiality born of a chivalrous devotion, if you aspire to, or have attained any little eminence, or have achieved even a small amount of success, it must have been over the rough and chastening roads of failure, and through the fatiguing quagmires and pitfalls of costly blunders; and shall we say at the expense of some priceless lives?

One might obtain a certain amount of satisfaction in reciting sometimes, in the quiet of his study, the words of the immortal Browning:

"Though I do my best I shall scarce succeed.
But what if I fail of my purpose here?
It is but to keep the nerves at strain,
To dry one's eyes and laugh at a fall,
And baffled, get up and begin again,—
So, the chase takes up one's life, that's all."

REFERENCES.

1. Author's paper, "Some Observations on Affections of the Gall-Bladder," *MEDICAL NEWS*, Nov. 17, 1900.
2. Diseases of the Gall-Bladder and Bile Ducts, page 175.
3. Transactions American Surgical Association, 1904. Discussion following Richardson's paper.
4. Skerritt—*ibid*.
5. New York Sun (editorial), April 2, 1905.
6. *MEDICAL NEWS*, May 6, 1905, page 847.
7. On Abdominal Tumors, quoted by Osler.
8. Bibliotek, for Lager, Jan., 1905.
9. Archiv f. klin. Chirurgie, 1904, Bd. LXXIII.
10. Vierteljahrsschrift. f. gerichtliche Medicin, 1904, XXVII.
11. Transactions of Section on Anatomy and Surgery of the Am. Med. Association, 1904, page 190.
12. "Certain Unavoidable Calamities Following Surgical Operation," by M. H. Richardson, M.D. *Boston Med. and Surg. Journal*, Vol. CLI, No. 22, Dec. 1, 1904. *N. Y. Med. Record*, Vol. 43, No. 20, May 20, 1893 (editorial).

The Chologogue Action of Anti-Gout Remedies.—

It may be of considerable importance in determining the pathogenesis of gout to note that H. KIONKA (*Zeitsch. f. Exper. Path. u. Therap.*, July 2, 1905) has found that the various antilithic remedies, as benzoic acid, quinic acid, salicylic acid, colchicine, are energetic chologogues.

THE SYMPTOMATIC TREATMENT OF TUBERCULOSIS.

BY J. R. L. DALY, M.D.,
OF NEW YORK.

THE subject of tuberculosis and its treatment is one which has engaged the attention of the medical profession for many years past. Discussions as to the proper sanitary management of the disease, the prevention of its spread, the care of the patient, the proper climatic conditions to be sought in the treatment of individual cases, have all received the consideration of the physician in the past and will continue to be subjects for argument and the exploitation of ideas for some time to come. The consensus of opinion is that, as far as the cure of individual cases is concerned, we are at about the same point from which we started years ago. Now, as heretofore, suitable climate seems to offer the only hope of arresting the progress of the disease, and this only in those cases in which the tuberculous process has not traveled sufficiently far to impair the resistance of the individual.

Remarkable evidence of the value of climate and the proper regulation of the mode of living have been brought forward from time to time in cases of tuberculosis that were discovered in their earlier stages, and sent to localities in which the altitude was higher and the air purer than in a crowded city. In my own experience in a hospital devoted exclusively to the treatment of tuberculosis, I have seen patients gain from ten to forty-five pounds in weight, while the tuberculous process in the lungs became completely arrested after a stay of less than a year in the institution, which was situated on high ground on the outskirts of New York City. Some of the patients, after discharge and residence in the city, returned to the hospital for further treatment, the fibroid envelope which had formed about the focus of disease having been broken down and given the germ opportunity for further activity. Invariably, however, these returning patients gave histories of alcoholic excesses, inability to obtain sufficient food, exposure to cold and wet, etc., as sufficient reasons for their failure to retain the comparatively healthy condition in which they left the institution. From the results I have seen of fresh air treatment, I am convinced that tuberculosis can, if its presence be early detected, be arrested by this means in conjunction with proper regulation of the mode of living. This treatment would be ideal if we could apply it to all phthisical cases, but, unfortunately, the great majority of those afflicted have not the necessary funds with which to defray the expenses of a sojourn in the mountains, and are compelled to remain at home amid unsuitable surroundings, at the mercy of the great white plague.

It is the purpose of this article to call attention to the fact that certain symptoms which occur in the course of the disease should be recognized and effort be made for their relief, in order

that the patient be rendered as comfortable as possible, and placed in a better position to combat the tuberculous process when circumstances prevent his transfer to a much more suitable climate.

The plan in vogue by many physicians to incorporate in their treatment the regulation of diet, hygiene, respiratory calisthenics, etc., is an excellent one, but when they limit their efforts to these latter practices and decry the use of drugs for the relief of symptoms, with the idea in mind that in upbuilding the system the symptoms will be made to disappear, they keep from the patient the means by which he would be vastly assisted in combating the disease. Nothing will contribute more to the failure of a patient to recover from any affection than personal discomfort, and some of the symptoms of tuberculosis are certainly discomforting.

Cough seems to be the only symptom that receives the attention that, in my opinion, many others equally deserve, and as long as there are coughs there will be as many methods of treatment as there are varieties of this symptom. I have found it a good plan to treat all forms of cough in tuberculosis with sedatives rather than with stimulating expectorants. It is of little use to assist the patient in bringing up the phlegm by stimulating, though loosening the cough, because by this plan the cough becomes a kind of continuous performance, the supply of excretory material remaining almost constant. Most tuberculous coughs are produced by the irritation due to foreign material in the lungs, and the aim in treatment should be to allay rather than promote this irritation.

Pleuritic pain is one of the most distressing symptoms accompanying tuberculosis and one of the most difficult to relieve. The attacks are periodical, occurring at such times as the process reaches the periphery of the lungs. Strapping of the chest on the affected side during expiration, with the internal administration of opiates when the pain is very acute, usually gives the best results. Where there is extensive involvement of tissue the limiting of breathing space by the adhesive strips often produces dyspnea, compelling the removal of the plaster. Painting the chest over the site of the pain with counter-irritants sometimes gives relief, but it is often necessary that the counter-irritant should be of considerable strength. When the condition of the patient warrants it I use

R. Ol. tigllii.....1½ drs.
Tinct. aconit.....1 dr.
Tinct. iodi comp. q.s. ad.....1 oz.

M. Sig. Paint over affected part when necessary.

Great care should be taken in the use of this mixture that it should be painted on lightly and not allowed to run, as it forms large vesicles, which should be confined to the part immediately over the site of the pain. In some patients, whose integument is thicker than normal, several ap-

plications are necessary, but usually one or two paintings will suffice to produce the vesicles.

In the selection of an hypnotic, if one be found necessary, a great deal depends upon the condition of the patient. Such a drug as chloral, for example, should be administered with great caution in cases in which the patient is suffering from an organic heart lesion, whereas in other cases in which the condition of the heart warrants its use it is of exceeding value. If the insomnia depends upon so-called nervousness the bromides, either alone or in combination with some safe hypnotic, will produce beneficial sleep, depending upon the extent of the neurotic condition and the dose of the remedies used. I have made it a practice not to employ any hypnotic which depresses the heart unless this organ is free from disease, and the degree of insomnia is such that it becomes necessary to use one of the more powerful drugs. In all cases, except those in which the patient is confined to bed through extreme weakness, I advise a bath, either tub or sponge, with water at 98° or 100° F., before retiring. In order further to assist in the dilatation of the peripheral arteries and draw the blood from the brain, hot-water bottles applied to the extremities and a bandage about the abdomen will often be found serviceable. I have seen small doses of nitroglycerin used for this purpose, but if it be necessary to resort to drugs to reduce blood pressure, in the effort to induce sleep, I prefer the bromides. When I find that mechanical means are insufficient to produce sleep I generally resort to some simple hypnotic. Of late I have employed with considerable success, except in cases complicated by severe pain, one of the newer remedies: Veronal. In practically every instance, except in cases in which such lesions as tuberculous kidney, pleurisy, etc., caused such suffering as to render it impossible for the patient to sleep unless the pain was first allayed, veronal produced a comforting sleep, lasting from four to eight, and even ten hours, and in no case did it leave any of the distressing after-effects which usually follow the administration of some of the older hypnotics. In insomnia, complicated by severe pain, opium or morphine, given one-half hour before the hypnotic, usually produced sleep. As a rule, in these cases the opiate fails to do more than relieve the pain, and it is necessary to administer the hypnotic to assist its action.

When pulmonary hemorrhage is indirectly the cause of sleeplessness the combination of the bromides with veronal will be found of great advantage, the latter being aided in its effect by the action of the bromides in the reduction of arterial tension. This same action is also of service in diminishing the tension in the lungs, thus minimizing the danger of recurrence of hemorrhage. In cases in which the condition of the stomach was such as to render the selection of a remedy which would not disturb that viscus a matter of importance I found that veronal,

given in hot milk, was always retained. In this regard care should be taken that the condition of the stomach be noted before the administration of any drug, as much depends on the use or abuse to which this organ is subjected, and an ounce of prevention is often worth many pounds of cure.

Laryngitis is probably the most painful and most dangerous of the local manifestations of tuberculosis. In nearly every case it impairs or inhibits deglutition, and the patient is deprived of necessary nourishment, and, in addition to the pain in the larynx, he suffers from hunger and, in extreme cases, actual starvation. A solution of cocaine hydrochlorate (4 to 10 per cent.), painted or sprayed on the larynx, will often afford relief in the milder forms of the disease, anesthetizing the part for a sufficient length of time to enable the patient to swallow his food without pain.

In the severer forms in which the ordinary agents failed, I have used ethyl-chloride to produce local anesthesia. I first used it while resident physician in a hospital devoted to the treatment of tuberculosis, and the results obtained then and since have not only been entirely satisfactory, but in many instances surprising. The value of the remedy in this affection was probably never better exemplified than in the first case in which it was employed. The patient was unable to swallow any food, even a mouthful of milk causing such anguish as to render deglutition impossible. Cocaine, as well as many of the pharmacopœial and proprietary remedies, were applied to the larynx, in the hope of relieving the pain, but without success. As the man was practically starving, the rectum being irritable and unretentive and rendering alimentation impossible by that channel, I decided, as a last resort, to try ethyl-chloride. The result far exceeded expectations, for the patient was enabled to partake of the first nourishment that had entered his stomach without the accompanying pain for weeks. I have used ethyl-chloride in about forty cases since, taking care to spray it directly on the larynx, and have always found it of extreme value in assisting the patient to swallow food, an act which otherwise would have been impossible. The ability to swallow lasted from twenty to forty minutes after spraying, while the patient remained free from pain for periods lasting from one to five hours, depending on the location and extent of the tuberculous process in the larynx.

I do not advocate the use of ethyl-chloride in all forms of tuberculous laryngitis. I believe it would be more harmful than beneficial in the edematous stage, but in the stage of ulceration, when all other applications proved practically inert, I found it not only beneficial but necessary, in order to prevent the patient from succumbing to starvation.

Profuse sweating at night is another symptom which may be relieved by upbuilding the pa-

tient's constitution, but this process is too slow and the hyperhidrosis should be treated when present, as it is frequently the very reason for the failure to gain strength, all other conditions being favorable. Although night-sweats are usually evidences of constitutional weakness, it is none the less true that this weakness is in many instances due to their presence. This symptom will, in the majority of cases, unless the asthenia is profound, yield to the action of the usual anhidrotics employed, but we frequently meet cases with little or no asthenia that fail to react to the ordinary agents. In such cases I look for a neurasthenic condition, and often find that this condition is the cause of the failure of the symptom to respond to treatment. As in insomnia, the addition of the bromide of soda or potash to the anhidrotic used will usually result in checking the sweating. The bromide should be given about one-half hour before, and the anhidrotic just after retiring. I have heretofore used atropine sulphate for the arrest of night-sweats, but of late I have been employing one of the newer products, eumydrin. The action of the latter resembles that of atropine, but I prefer it because it is quicker in its effect, and does not dry up the throat as does atropine. This latter quality is one much to be desired in an anhidrotic, as the dryness of the throat caused by atropine is frequently productive of much distress, particularly in the presence of cough, not only preventing the relief of the latter symptom, but contributing to its production.

The action of eumydrin as a respiratory stimulant is more lasting than that of atropine, a quality in its favor in the treatment of tuberculosis. While I have had uniformly favorable results in the treatment of night-sweats in tuberculosis, cases frequently present themselves which resist the action of any anhidrotic used. Search should then be instituted for the specific condition which prevents relief of the symptom, and, in addition to the administration of the anhidrotic, treatment should be directed along such lines as may be suggested by the cause.

ROBERT N. WILLSON.

FOUR CASES OF CEREBROSPINAL MENINGITIS PROBABLY DUE TO THE PNEUMOCOCCUS.

ROBERT N. WILLSON, M.D.,

OF PHILADELPHIA.

The following cases are reported for two reasons, both independent of their inherent clinical interest. First, because they demonstrate in a manner which appears to me to be beyond cavil a singular teaching to the effect that pneumococcus meningitis is *a priori* a fatal condition, and second, because from the similarity of their clinical pictures they offer an opportunity of comparing between this and other forms of spinal inflammation.

Case I.—R. M., female, white, aged twenty-three years, engaged in housework. Father died of diabetes. Mother alive and well. Patient had the ordinary diseases of childhood, and also diphtheria, from which she completely recovered. Had pneumonia last February, and during her convalescence went out in rain. Began to feel chilly two days later (three weeks prior to admission to the Philadelphia Hospital), and experienced irregular chills and fever during the next two weeks. Patient did not go to bed. A week passed by before headache appeared. Three days later stiffness of the neck was noted, and active vomiting following the taking of medicine. On April 4, 1905, she was admitted to the ward, subsequent to an attempt on the same day at lumbar puncture by her family physician, who failed to reach the canal. On admission she was mentally excited, her neck rigid, her pupils equal and dilated, but reacting normally to light and distance. Her head seemed "as if it would split open," to use her own expression. The tongue was typhoid in type, the pulse rapid but of fairly good quality; the skin of the arms and legs was hyperemic and hyperesthetic. There was a rose-colored eruption upon the chest and upper arms, disappearing on pressure or stroking. The patellar reflexes were nearly absent. Babinski's phenomenon was present, and Kernig's knee contracture was present in marked degree. The tache cérébrale was prompt and persistent. The patient complained of photophobia and called attention to a diplopia in the left eye. On April 21 (two days later) the right pupil was larger than the left, and ptosis of the left eyelid was present. On April 23 there was also slight external strabismus of the left eye. The pupils were again equal and widely dilated. Nystagmus was noted. On April 24 Dr. Hansell reported "Nystagmus on all forced movements. Occasional divergence of left eye, with limited movement upward. Partial ptosis of left eyelid. Media clear, fundus in both eyes normal."

On May 1 I noted a decided lateral curvature of the spinal column to the right, also the physical signs indicating a healed or quiescent tuberculous involvement of the right apex; also a friction rub and a few fine râles to the left of the sternum in the third interspace. The heart was rapid in action, but all its sounds clear. The second pulmonic sound was accentuated. The abdomen was tender to palpation in the right iliac fossa.

The urine contained a trace of albumin, but was otherwise negative to chemical and microscopical tests.

Treatment.—Great relief from the subjective symptoms followed the complete withdrawal of the cerebrospinal fluid on the day of admission, and without further treatment except a low diet and rest in bed the patient went on into an uninterrupted convalescence. When discharged, about two weeks ago, the eye symptoms had disappeared; there was no rigidity of the neck;

Babinski's phenomenon had disappeared, but Kernig's sign was still positive.

Dr. Rosenberger made the following report upon the clear cerebrospinal fluid: "Upon centrifugalization for several hours no sediment was obtained. Inoculations were made upon agar, but no bacterial growth developed. The original tube was placed in the incubator, and in seventy-two hours a slight sediment was present, which was made up of micrococci resembling pneumococci, occurring in pairs and retaining the dye by Gram's method. No cellular elements were observed."

Case II.—J. K. C., male, aged twenty-two years, occurred in private work. The father and mother were alive and well, one aunt insane, but there was no other suggestion of nervous involvement in the family. I saw him in my office on March 14, 1905. He had a severe headache, which gradually increased in intensity until he next presented himself for inspection two weeks later. He had failed to see Dr. Posey, to whom I had sent him, but on consulting him at this time Dr. Posey sent the following report: "Optic neuritis in both eyes, most marked on the right side. Left-sided ptosis. None of the other extraocular muscles seem to be affected. The irides respond well to light and accommodation stimuli. Vision is normal in both eyes, and there is no restriction in the visual fields. The patient seemed to me to be mildly delirious."

The patient was seen the same evening in St. Agnes' Hospital. There was intense headache, some resistance and pain on pressure over the nuchæ and occiput; the pupils were dilated and equal, and there was ptosis of the left eyelid, also decided palsy of the left side of the face, the tongue, and the lips. The pulse was fairly slow and of high tension. There was no eruption; no herpes. The spleen was not demonstrably enlarged. The abdomen was altogether negative. The heart and lungs were normal, except for a marked accentuation of the second pulmonic sound. No pulmonary lesion could at any time be found.

The patellar and Achilles tendon reflexes were absent; Babinski's phenomenon was suggestive only; Kernig's sign was markedly evident on both sides. There was no hyperesthesia, and no anesthesia. On the following morning, after a seeming amelioration of the headache, the symptoms recurred with the same violence, and the cerebrospinal fluid was withdrawn, about 35 c.c. spurting from the canula in a clear forceful stream. The headache at once became excruciating, and then, within a moment or two, disappeared altogether, and the patient had his first sleep during many days.

The fluid was slightly clouded (not turbid), and smear preparations showed considerable numbers of small encapsulated diplococci resembling the pneumococcus, and retaining the stain by Gram's method. The leucocytes were few in number and were mainly lymphocytes. In

no instance could I detect an intracellular coccus. Dr. O'Malley, examining independently of me, found the same organisms, and thought he discovered one within a polymorphonuclear leucocyte. Cultures on agar and blood serum were all negative. The Widal test was negative, the leucocyte count (blood) was 5,000, and the urine showed no abnormality.

Two hours after the spinal drainage the ptosis had disappeared, the headache had not returned, and the patient was altogether comfortable. The pupils were constantly dilated and equal. The photophobia was absent on the following day.

On April 10 lumbar puncture was performed a second time, owing to the recurrence of severe headache and photophobia. About 20 c.c. of clear fluid under high pressure were obtained. Relief was immediate, as in the former instance, there being on this occasion no preliminary exaggeration of the pain. Prior to this puncture the leucocytes in the peripheral blood numbered 10,800, the differential count showing almost normal relations of the various cell types.

On April 11 the plantar reflexes appeared and were normal. The pupils were still dilated and other reflexes absent. Four rose spots remained.

On April 12 there was the first suggestion of a patellar reflex. On April 13 the spots had disappeared. The patient now began to complain of hunger, and from this time on convalescence was steady. He was last seen by me on May 10, 1905, just prior to his departure from the city. The patellar reflexes were sluggish, though present on both sides; Kernig's sign was still markedly in evidence, and on examination by Dr. Posey there was still found to be a persistent congestion of the optic nerve heads.

On May 30, 1905, the patient wrote that on his return home he had "grippe"; that his eyes again began to hurt, and that he had a jarring feeling in the spinal column on walking. He is now quite well, though Kernig's contracture is still present. The patient had often, to his own knowledge, raised his legs to a right angle without inconvenience prior to this illness.

Case III.—H. D., white, male, aged fifteen years. Family history negative. Admitted to the Philadelphia Hospital May 18, 1905, just prior to the crisis of a pneumonia of the left lower lobe. The symptoms (pneumonia or meningitis) appeared with suddenness, chills, fever, vomiting, three days before his arrival at the hospital. On the following day the crisis occurred. Delirium, intense headache, nausea and vomiting had all been present during the first day of the disease. There was no rash, and rigidity of the neck was absent. The nuchæ were tender to pressure, however, and not only was Kernig's sign present on both sides, but the patellar reflexes were altogether absent. The urine contained considerable albumin, also hyaline and granular casts.

Lumbar puncture was done May 20, 1905, and clear fluid obtained. In the fresh fluid there were

found (Dr. Rosenberger's report) "cocci in pairs, possessing the morphology and tinctorial properties of the pneumococcus." The cultures were all negative. No cellular elements, except erythrocytes were discovered.

Whether owing to or simply following the lumbar puncture the temperature fell to normal and the convalescence was uninterrupted. Unfortunately this patient was discharged before the final observations were made upon the reflexes, and upon the ocular condition.

Case IV.—J. H., white boy, aged seventeen years. Admitted to Philadelphia Hospital on March 11, 1905. Father and mother alive and well; five sisters alive and well. Two sisters dead, one of brain congestion, and another still born. Patient had measles and scarlatina as a child, but recovered perfectly. Smokes cigarettes to excess. Was at work until three days prior to admission, but mother says he was unusually cross and irritable for two weeks before. Three days before he was seen by me he became delirious, "had a high fever," was confused, and talked of fires continually. Complained of severe headache and pain in his left side on coughing. On the day before admission he said his legs burned, and then became actively delirious, rushing about the house. He was admitted in an excited state, but soon relapsed into a stupor, from which he could not be aroused.

On March 13, 1905, there was complete incontinence of urine and feces. The urine contained no albumin, and only a few scattered hyalogramgranular casts. On March 15 there was also a trace of albumin. The Widal test was negative, as in all of the preceding cases. There was a slight impairment of resonance at the left base, with fine râles, and harsh breath sounds. The second pulmonic sound was accentuated. The pupillary reflexes were positive; the pupils themselves dilated and equal. The tendon reflexes were all absent; Kernig's contracture was present on both sides; Babinski's phenomenon was not evident. Sensation was preserved.

Lumbar puncture was done on March 16 and clear fluid obtained. Dr. Rosenberger reported that "it was negative in regard to bacteria and cellular elements. Inoculations of guinea-pigs were also negative." The eyegrounds were normal, there being merely a slight hyperemia of the disks, which were normal in size. On March 15 it was noted that the mental condition was clearing, the patient being stupid, but neither delirious nor comatose. Kernig's sign was still marked, as was also the tache cérébrale, but there was no hyperesthesia. The pulmonary congestion seemed to have all disappeared; in fact, there was never a unanimous opinion among those who studied the case as to whether a pneumonia had actually been present. On March 18 the leucocytes numbered 17,600. The pupil of the left eye measured 5 mm., that of the right eye 4 mm. The irides were sluggish in their response to light, but prompt to accommodation and con-

vergence. The retinal veins were slightly engorged and tortuous. There was now full control over the bladder and rectum. On April 2 there was evidently a gradual return to a clear mental condition. The patient was soon out of bed and hungry. Memory appeared unimpaired. On April 10 he returned to his home, slightly dull mentally, but otherwise well. Kernig's contracture persisted up to the time he was lost sight of.

There are many interesting points connected with these cases, all of which have a positive bearing upon our understanding of the condition: First and foremost is the close association of three cases of meningitis, two without and one with pneumonic involvement, from all of which a diplococcus resembling the pneumococcus was obtained on examination of the cerebrospinal fluid; and one case of meningitis persisting for some time after doubtful pneumonic signs had disappeared, in the fluid from which no bacteria could be found either by direct or by culture methods. The latter case, in fact, suggests the series of instances reported by Wertheimer (*Münch. med. Woch.*, li, No. 23), in which he found a non-bacterial serous meningitis following a number of cases of pneumonia. In one of these cases he performed lumbar puncture fourteen times within a month, with final recovery.

Another item of interest centers in the fact that although diplococci resembling pneumococci were evident in smear preparations from the fibrin film which forms after a few hours in all cerebrospinal fluids (Cases I and II), and in Cases II and III from the fluid itself before the film had formed, nevertheless from only one of these specimens could the organism be grown, and then only in the fluid itself, appearing 72 hours after being placed in the incubator. This difficulty of cultivation would render the suspicion at least tenable that we were dealing with the meningococcus, were not the morphology and the staining qualities in Cases I and II, and in Case III also the preceding pneumonia, so strongly in evidence for the pneumococcus. In each and every case the prevalence of the meningococcus infection rather biased the mind toward this more frequent form of epidemic meningitis. A case in which the typical intracellular organism was studied was under observation at almost the same time in another ward of the same hospital, and in the same service.

Again the finding of one intracellular diplococcus in the fluid from Case II might seem to indicate a possible confusion with the meningococcus, were it not for the positive retention of the stain by Gram's method in every instance. Moreover, L. B. Wilson reported in 1901 (*Journal of the American Medical Association*, Dec. 21, p. 1675) two cases of cerebrospinal meningitis in which intracellular pneumococci were found not only in the cerebrospinal fluid within the leucocytes before death, but also in the brain exudate post mortem. The leucocytes contained from one to twelve cocci each.

In Case II several stains were employed by me to eliminate the possibility of introducing an extraneous organism with the staining fluid. Thus it would seem fair to conclude either that the pneumococcus was actually present, and the cause of the meningitis, or that in each and every case the diplococcus of Weichselbaum must have taken on a new morphology and staining qualities. The former of the two is, of course, the more natural and rational inference, in spite of the almost inexplicable refusal of the organism to grow upon the various culture media.

It is of vital importance in discussing cases such as the foregoing that the diagnosis of cerebrospinal inflammation be established beyond all reasonable doubt. Otherwise the mere finding of bacteria in the cerebrospinal fluid may have no more significance than the finding of pneumococci in the blood of the majority of patients upon a ward upon which a case of pneumonia has been treated. Especially is this true if we are to place reliance upon the accuracy of Cathelin's studies (*Presse Medicale*, II, No. 90, 1903), which seem to demonstrate a constant intercommunication between the bloodstream and the cerebrospinal fluid by means of lymph vessels. Each of the cases considered in this paper, however, appears to give abundant evidence of inflammatory involvement of both the spinal and cerebral meninges. Case I showed mild delirium, rigidity of the muscles of the neck, pain on pressure over the cervical vertebrae, intense headache, congestion of the optic disk, photophobia, inequality of the pupils, ptosis of the left eyelid, slight external strabismus, nystagmus; also loss of the tendon reflexes, and the appearance of the Babinski and Kernig's phenomena. The temperature chart also resembles the type usually seen in cerebrospinal infections of a mild grade. Still more important, however, was the association of the foregoing picture with a great excess of cerebrospinal fluid, and the prompt relief of the symptoms by the evacuation of the latter.

Case II presented all the symptoms seen in Case I, and in addition a double optic neuritis of a much more advanced degree, palsy of the muscles controlled by bulbar centers, and the largest quantity of cerebrospinal fluid obtained from any of the cases studied in this connection. Case III appears to me the only doubtful one of the four, and yet even here the autopsy would be necessary to prove that the symptom-complex was not that of meningitis, the probability being for rather than against. Case IV admits of no doubt of extensive meningeal involvement, the offending organism being the only question in dispute. Councilman's recent paper establishes beyond question what was taken for granted before, that all cases of actual meningitis are cerebrospinal, and were this not the case the symptoms would demonstrate it to be true at least with regard to the cases under discussion.

In three of the four cases the *onset* was sudden, characterized by a chill, vomiting, and mental ex-

citement. In one (Case II) the prodromes extended over the greater portion of a month, consisting mainly of occipital headache, and eventually the symptom-complex of optic neuritis. At the end of the month delirium set in without warning, disappearing only with the relief of intracranial pressure by lumbar puncture.

Cephalalgia was present and intense in every case from the start until delirium or coma set in. In Cases I and II the relief following cerebrospinal drainage left no doubt as to the etiology of the headache. In Case II the headache and ocular distress returned one week after the first lumbar puncture, and were dissipated at once by a second emptying of the canal. *Delirium* was present early in the disease in all of the cases except Case II, in which it appeared after a long prodromal period, and in all it disappeared after drainage of the cerebrospinal canal. Only in Case IV was *coma* present, following the initial delirium and persisting for eight or ten days. It finally yielded, and when the patient was lost sight of he was practically clear in mind.

In all of the cases the patellar and plantar *reflexes* were absent on both sides very early and throughout the course of the disease. In all they gradually returned until they appeared normal. Kernig's contracture was present in the hamstring muscles (not in the arms) in all, but in Case I the patient stated that "she never could straighten out her knees." In Case II, on the other hand, the patient remembers distinctly that he could. In Cases III and IV the patients had no clear knowledge on the subject. In none of the four had Kernig's sign disappeared up to the time they were lost sight of by me. Babinski's dorsal reflex was present at some time in all; in none, however, did it persist until the patient was out of bed. The ocular reflexes appeared normal without exception. The tendon reflexes of the upper extremity appeared intermittently and irregularly and then abnormal.

As already stated, the *ocular reflexes* were almost normal in every case and at all times. In Case I on admission the pupils were equal and dilated. Later they were unequal, ptosis of the left lid appearing simultaneously with contraction of the left pupil, the right remaining dilated. In Case II the pupils were at all times dilated and equal. In Case III I find no note as to the size of the pupils. In Case IV they were at first equally dilated, and subsequently the left pupil became the larger of the two. In Cases I and II there was marked *ptosis* of the left lid, disappearing almost at once in Case II following the drainage of the cerebrospinal canal. In Case I it was much less marked following lumbar puncture, but disappeared finally only after several weeks time. Severe inflammation was evident in both optic disks in Case II. In Cases I and IV the disk was decidedly hyperemic. In Case III the eye-grounds were not examined.

In all of the cases *rigidity* of the muscles of the neck and pain on pressure over the lower

cervical vertebræ were constant and early symptoms. In Cases I and II the rigidity was much less marked following the lumbar drainage. In Case IV the patient showed a decided tendency to contracture of the hamstring tendons for some time during his early convalescence.

The temperature in Cases I and II showed a marked tendency to an evening rise and a morning fall, the acme averaging 100° F., but in Case I frequently approaching 102° F., and once exceeding 103° F. In Cases III and IV the resolving of the pneumonia, whether primary or intercurrent, apparently marked the final fall of the febrile curve. In Case II, particularly, the temperature fell from an irregular character and an acme of $100\frac{2}{5}^{\circ}$ F., to normal, and the pulse from 35 to 70, where they remained for a few days, presumably until the cerebrospinal fluid again formed in excess. In Cases III and IV the temperature appeared to be that of a convalescent pneumonia. The pulse frequency in Case I, a nervous young woman, averaged 110 to 120; and in Case II, a phlegmatic young man, it never exceeded 85 until he arose from his bed in his final convalescence. In Case III it averaged 120 up to the supposed crisis, and then fell to normal, synchronously with the temperature. The respiratory rate in Case I only once rose above 28 (32). It averaged 24. In Case II it ran along the normal line. In Cases III and IV, complicated with pneumonia, the respiratory rhythm and frequency varied with the pulmonary condition from 45 to normal.

We are able from these figures to draw but one conclusion, and that with due allowance made for temperamental differences, to the effect that the pulse rate tended toward a relative bradycardia rather than the tachycardia usually noted in the meningococcus infection. From the temperature and respiration records there is merely the irregular character of the febrile curve to be noted, and its tendency to fall to the normal in the early morning hours; also the constantly normal respiratory rate, when uninfluenced by complicating conditions.

In Cases I, II and IV there were present a few rose-colored, typhoid-like spots upon the chest, abdomen and back. These disappeared invariably soon after the beginning of convalescence. In none of the cases were petechiæ noted. Case I presented marked hyperesthesia of the legs, and especially the pretibial surfaces; the lower limbs were also decidedly hyperemic for several days subsequent to the patient's admission to the hospital. Herpes was absent in all except Case I.

The only abnormality discovered by physical examination of the chest occurred in the lungs, and in the second pulmonic cardiac sounds of Cases I, III and IV. Case I showed a fibroid condition of the right apex, certainly quiescent, and probably a healed tuberculous area. Case III was admitted to the hospital with consolidation of the base of the left lower lobe. Case IV, for

a day or so, showed a small area of probable bronchopneumonic infiltration directly under the angle of the left scapula. In all of these cases the second pulmonic sound was markedly accentuated, whether a pulmonary lesion was evident or not. The heart was otherwise normal.

The abdominal examination was altogether negative. Neither the spleen nor the liver was enlarged nor tender to percussion or palpation in any of the cases.

Contrary to the general experience in cases of pneumococcus infection, the cerebrospinal fluid in three of these cases was perfectly clear. In one case (Case II) it was slightly turbid. I have seen also in meningococcus meningitis a number of cases in which the fluid was perfectly clear, the case already alluded to in this paper offering an example of this kind. It seems to me probable that the character of the fluid, whether purulent or clear, must depend more upon the virulence of the infecting organism and upon the resistance of the individual than upon any definite rule of occurrence. It may well be, moreover, that early and complete evacuation of the infected contents may forestall a purulent inflammation of the meninges, and perhaps occasionally prevent a serous exudate from going on into purulent metamorphosis.

It is worthy of notice that Case II, by all odds the most severe of the four, showed at first a normal leucocyte count (5,000), and later a relative increase to 10,800. Compared with the usual leucocytosis of cerebrospinal inflammation this is, of course, noteworthy, and may perhaps be ascribed to the same early relief of intracranial tension. Unfortunately no record was preserved of the leucocyte count in the other cases. There was also a slight reduction in the percentage of hemoglobin, and in the number of erythrocytes in the blood of Case II, but no other pathological changes than those usually found in mild infectious conditions.

In all four instances the urine contained albumin in small quantities, as well as more or less microscopic sediment of renal origin, during the active stage of the disease.

The treatment in all of the cases was identical, and consisted in the prompt withdrawal of all the obtainable cerebrospinal fluid, with the object in view of relieving intracerebrospinal hypertension. That the degree of pressure was excessive was evidenced by the forceful jet of fluid through the canula, and by the amount of fluid obtained, in one instance considerably over one ounce.

The result was similar to that obtained in many cases of uremic hypertension, viz., almost immediate relief from the symptoms of intracranial pressure. In Case II lumbar puncture was performed on two occasions, a week apart, and on both improvement was prompt.

In Case II mercuric chloride and KI were employed for a time, and in Case IV sodium iodide was used for a few days. No other medication was attempted. With rest in bed, a low dietary,

and free purgation the result in all four cases proved favorable and the patients are now apparently well.

It is my conviction that these cases were all instances of mild infection, and that the treatment merely furthered an inevitable convalescence. On the other hand, it would appear likely, from the positive reaction following thorough drainage of the cerebrospinal cavities, that the error of those who have heretofore found lumbar puncture unavailing may have rested upon the fact that too little fluid was withdrawn to afford a real or permanent lightening of the load. The fact must not be lost sight of that, even when all has been removed it may reform and recollect, sometimes more than once prior to recovery.

CONCLUSIONS.

1. While not definitely proven, it is highly probable that at least three of these cases (I, II and III) were due to pneumococcus infection.

2. That pneumococcus cerebrospinal meningitis, while usually of serious and often fatal significance, may run a mild course and terminate favorably, even in a series of cases.

3. That thorough cerebrospinal drainage not only exerts a favorable influence upon the symptoms, but may render mild an otherwise grave condition.

4. It would appear possible from the study of these cases to conclude that the clinical laboratory findings (character of the cerebrospinal fluid, blood picture, etc.) may be fundamentally affected by early and complete relief of intracerebrospinal drainage.

THE GYNECOLOGIC BLADDER.¹

BY A. ERNEST GALLANT, M.D.,

OF NEW YORK;

PROFESSOR OF GYNECOLOGY, NEW YORK SCHOOL CLINICAL MEDICINE;
CONSULTING SURGEON, JAMAICA HOSPITAL, JAMAICA,
L. I.; ASSISTANT GYNECOLOGIST, ROOSEVELT
HOSPITAL, O.P.D., ETC.

To THE experienced student of womankind and her ailments, all things are possible, some improbable; all signs and symptoms at times fail to declare with truthfulness the exact condition under consideration. Immaculate conception, clap and chancre are not uncommon; pseudomata, pseudalgia, and pseudocyesis invade the belly and brain and are as difficult to eradicate as the real infections of the Neisserian coccus.

Within the female pelvis are found "three tracts or channels, each endowed with special functions; each subdividing and subject to changes in size, shape and consistency necessary for the fulfilment thereof. These tracts, independent, yet wonderfully interdependent, correlated, acting each for itself, yet every action affecting its neighbor for good or evil, work together the one with the other, in such intimate relationship as to require the most thorough knowledge of their anatomy, functions, and pathology to determine (1) which is the sufferer,

(2) which is at fault, and (3) toward which we must direct our therapeutic efforts."²

It was somewhat startling, after reviewing 500 consecutive histories of cases seen by the writer at the Roosevelt Hospital (out-patient department) to find that in 213 (42.6 per cent.) the bladder was referred to as in some way abnormal and with striking uniformity, viz.:

Histories.	With abnormal urination.
Nos. 1601-1700.....	53
Nos. 1701-1800.....	36
Nos. 1801-1900.....	46
Nos. 1901-2000.....	42
Nos. 2001-2100.....	36
Total.....	213 42.6 per cent.

Omitting all but the essential details, let us pass rapidly in review several cases illustrating the numerous variations from the normal, whereby the bladder as a reservoir and its expulsive power may be modified or interfered with.

In Children.—Six Cases. *Case 1679.*—Girl, five years old; screams while passing her water; yellow discharge from urethra and vagina, labia bathed in pus, excoriated. Diagnosis, gonorrheal urethritis and vaginitis. Treatment: Irrigation of the vagina with boric acid solution, followed by silver nitrate solution, ten grains to the ounce.

Case 1648.—Girl, seven years old; frequent painful urination. Urine very acid. Diagnosis, aciduria. Treatment: Buchu mixture, half dram in six ounces of water, every two hours.

Case 1828.—Colored girl, thirteen years old; cannot hold her water, day or night. Prepuce adherent to clitoris. Clitoris hypertrophied, hardened. Masturbation. Treatment: Amputation clitoris. Six weeks later mother reports incontinence stopped.

Case 1895.—White girl, eleven years old. Clitoris small, labia minora and preputium hypertrophied, hips, mons and pelvis "feminine type." Hymen admits index finger, edge thickened. Diagnosis: Traumatic vaginitis (finger or boy). Parent told to watch her. She did not return.

Of Glenards' disease in children we have seen but few cases, probably because of the small number of children referred to the gynecologic department. The following corresponds with that condition in adult nullipara:

Case 1862.—Girl, eleven years old. For about one year has suffered with pain in her back, both iliac regions, right hypochondriac and epigastric regions; belching, bloating and indigestion; bowels move daily; urination painful and excessive at times. Examination shows lower pole of right kidney palpable, greater curvature of the stomach on level with umbilicus. Abdomen distinctly protuberant. Diagnosis: Intermittent hydronephrosis, Glenards' disease. Treatment: Advised a special corset, to support prolapsed stomach and kidney.

¹ Read before the Genito-Urinary Section, of the Eastern Medical Society, March 7, 1905.

² New York Medical Journal, March 22, 1902.

Case 2047.—Girl, fifteen years old, 5 feet 2 inches tall, weight 100 pounds, distinctly overgrown; menstruated at thirteen years every twenty-eight days, for four or five days, flow moderate, good color, and regular up to two months ago. Complains of "wetting bed" at night; frontal headache, cardiac palpitation. Very anemic; with granular lids, muscles of right eye recently cut. Diagnosis: Chlorosis, associated with extraordinary growth. Treatment: Atropine sulphate, grain 1-100 at 4 and 8 P.M., with tablet of iron, arsenic, quinine and strychnine, from 3 to 12 per day. Result: Menstruation reappeared the next week, and she had wet the bed but once during that time.

Adults.—Among the 207 patients sixteen years or over there was—

	Instances
Frequent urination (every minute to two or three hours).....	55
Frequent urination with burning or pain....	27
Frequent urination, occasionally.....	1
Frequent urination at night.....	3
Frequent urination in daytime.....	3
Frequent urination night and day.....	3
Infrequent urination.....	3
Constant desire to urinate.....	7
Incontinence.....	7
Incontinence day and night.....	2
Inability to retain urine at times.....	4
Burning, cutting, sharp pain during or after (urethral).....	50
Burning at times.....	9
Vesical tenesmus after urination.....	7
Pain in holding urine.....	4
Urgent urination.....	3
Excessive urination.....	5
Scanty urination.....	5
Alternate excessive and scanty urination.....	1
Hematuria.....	3

The vaginal discharge was said (by the patient) to be

	Cases.
Yellow or creamy.....	78
White.....	47
Greenish-yellow.....	2
Bloody.....	4
Total.....	131

Purulent Urethrovaginitis.—Fifty-three cases (25 per cent.) were classified as of infectious origin and presented classic symptoms thereof, viz.: Frequent painful urination, suprapubic pain, with a creamy discharge from the vagina, often from the urethra, and not infrequently from the cervix uteri. Of this group the youngest was sixteen years, the oldest thirty-two years, between sixteen and nineteen years, 8 cases; between twenty and twenty-nine years, 37 cases; between thirty and thirty-two years, 8 cases, intimating at least that the gonococcus flourishes most luxuriously during the third decade of female life.

Urethral Caruncle, Lumbar Sinus after Nephrorrhaphy.—Case 1883.—Twenty-six years old, married four years, never pregnant. Four years

ago operation for removal of ovaries and tuberculous peritonitis. Five months ago both prolapsed kidneys sewed up. Symptoms: Painful, frequent urination; white vaginal discharge; dysparunia; headache; bowels move 2-3 times per week; poor appetite. Since operation a sinus has discharged pus from wound over left kidney. Examination: Both kidneys well up; no backache since they were sutured. Pus running from sinus in left loin; a small, very sensitive caruncle at meatus externus urethræ. Treatment: Advised opening the lumbar sinus; silver nitrate 6 per cent. to caruncle; sinus dressed with balsam oil. Two months later, after severe pain in left loin, she entered St. Vincent's Hospital, the sinus was laid open and a pad of gauze removed therefrom. Five months after, left loin healed; dysparunia still caused by reappearance of caruncle. Advised operative removal as the only means of permanent cure.

Hematuria.—Case 1878.—Patient complained of abdominal and cardiac pain, painful urination, and bloody urine. Examination demonstrated ante flexion of the cervix; a flattened pelvis, superior strait 3 inches; urine by catheter clear, acid and blood in the end of the catheter when withdrawn. Diagnosis: Urethritis; treated by local applications of silver nitrate, 6 per cent., and alkalies internally, with free evacuation of the constipated bowel.

Hematuria Due to Prolapsed Right Kidney.—Case 1785.—H. B., forty-two years old, mother of two children, complains of the "misery" in the small of her back and along the right loin, for a week past. Voids urine frequently, without pain, but like blood.

Examination of the right loin and hyperchondrium discloses a very tense mass, which on careful manipulation can be displaced upward above the chondral border. Microscopically the urine shows blood thoroughly admixed with the urine. Treatment: Rest in bed, and an alkaline mixture. Advised to rub the lump upward should pain recur. Three days later she reported the urine clear and freedom from pain. No recurrence.

Trigonitis.—This not uncommon condition, the chief characteristic of which is a constant desire to urinate, or a feeling that the bladder has not been completely emptied, is exemplified by Case 1661, a married woman of twenty-seven years, who, since an operation for "tear of the womb" 3½ years ago, has been suffering from burning micturition and a constant desire to pass water; pain in her right and left iliacs, sacral region; a congestive, frontal headache, and excessive creamy vaginal discharge. Examination: Urine acid; urethra tender; trigone very sensitive to probe. Uterine fundus lies on bladder, cervical mobility limited by fibrous thickening of the utero-sacral ligaments. Treatment: Injection of 50 per cent. ichthyol in water, into the bladder, by means of a "P" syringe; "Buchu mixture" internally; and an Albert Smith pessary to relieve

the drag of the uterus on the thickened uterosacral ligaments. Later a two per cent. silver solution was applied every fourth day to the urethra.

Trigonitis; Internal Hemorrhoids; Retroversion.—Case 1647 represents a still more complicated type. Mrs. C. C., aged thirty-nine years, two children, instrumental labor, cervix deeply lacerated and since repaired, uterus drawn to the left by cicatrix. Symptoms: Right pelvic pain; creamy vaginal discharge; frequent urination day and night; mucous, bloody stools; diarrhea, and piles which "come down"; a ravenous appetite associated with "gas on the stomach." Examination: Urine alkaline; cervix uteri one inch from the hymen; fundus in sacral hollow; well-marked internal hemorrhoids, with fissure; trigone very sensitive. Diagnosis: Trigonitis, mucous colitis, internal hemorrhoids, fissure in ano; retroversion uterus dragging on old cervical scar; referred to hospital for removal of hemorrhoids and appropriate remedies.

Pelvic Peritonitis.—The anabasis of specific infection into the tubes and peritoneal cavity is announced by intense pain, fever, abnormal rigidity, and bladder irritation, as in case 1802, I. D., colored, sixteen years old, complained of severe suprapubic pain for one week; yellowish-red vaginal discharge, burning micturition. The girl's face indicated that she was suffering; the abdominal tenderness and rigidity, with the character of the discharge were sufficient to complete the clinical picture of gonorrheal vaginitis, urethritis, and peritonitis, without making a vaginal examination.

Plaster-of-Paris Pelvis.—Three cases of pelvic peritonitis had reached the stage of exudation with excessive fibrin formation, filling the pelvis, embedding the uterus, and adnexa in a hard mass which from its striking resemblance has been designated "plaster-of-Paris" pelvis.

Case 1824.—M. H., thirty-two years, married twelve years, one child ten years ago, labor easy. For the past two weeks she has had severe pain, especially in left iliac region; yellow discharge; pain while passing water; bowels move only after salts or oil. On examination the fingers come in contact with a hard mass filling the pelvis, embedding the pelvic viscera so completely as to render them indistinguishable the one from the other. Treatment in these cases works wonders. Hot enemata, and vaginal douches; ice-coil to the abdomen; free evacuation of bowels; rest in bed; and above all vaginal packing with gauze saturated with ichthyol 25 per cent., glycerin 75 per cent. and renewed every day, will result in a rapid subsidence of the symptoms, and melting away of the exudate as snow before the sun. The same ichthyol solution may be applied to the urethra, through a Kelly cystoscope or bivalve urethroscope.

Nine months later, my substitute notes the return of this patient saying that for the past

three weeks she had suffered from burning and itching, especially while urinating.

Pyosalpinx.—Dysuria of recent date may cause such intense suffering as to overshadow what to the examiner's mind is of much greater importance, as illustrated by Case 1823. K. D., aged twenty-seven years, married nine years, two children, last seven years old. For the past week has experienced severe pain during urination, pelvic and sacral pain. Bowels move two to three times a week. Pelvic examination shows a small uterus fixed on the left, anteriorly, right tube distended, size of large orange, the whole being immobilized by a considerable plastic exudate. Diagnosis: Gonorrheal urethritis, vaginitis, salpingitis and peritonitis. Advised to enter hospital.

Reinfection or Recrudescence after operative removal and apparent cure of bladder symptoms may take place as in Case 1842. M. G., aged twenty-seven years, married three years. Operation for removal of ovarian abscess four months ago, at Bellevue Hospital. For the past two week's burning urination, and vaginal discharge. Diagnosis: Infectious urethrovaginitis.

Cystocele, Etc.—"The womb comes down," was a prominent symptom in 18 of the 213 bladder cases we are now considering and on examination proved to be

	Cases.
External prolapse of bladder and urethra.....	1
External prolapse of bladder, urethra and cervix..	1
External prolapse of bladder, urethra, cervix and rectum.....	2
External prolapse of urethra.....	1
Internal prolapse of bladder.....	1
Internal prolapse of bladder, retroversion 2°.....	2
Internal prolapse of bladder and urethra, retroversion 2°.....	2
Internal prolapse of bladder, urethra and rectum..	1
Internal prolapse of bladder, rectum and retroversion 2°.....	1
Internal prolapse of bladder cervix uteri, retroversion 2°.....	1
Internal prolapse of uterus (at vulva), retroversion 3°.....	2
Internal prolapse of rectum, retroversion 2°.....	2
Internal prolapse of bladder and rectum (pregnant)	1

As might be expected in this class of cases, frequency of urination and difficulty of control or incontinence are distressing to the patient, and when there is added sacral pain, or "bearing down," and in some, pain in one or other iliac region, their suffering is no doubt very real.

Owing to laceration of the perineum and the weight of the hypertrophied uterus, only the hollow, round, rubber pessaries (soft or hard) will support the prolapsed bladder; in Case 1669 the vaginal irritation was too great to tolerate a pessary, and in most cases radical operation must be resorted to, extreme care being exercised to reimplant the bladder at a high level, or excise the whole vagina as practised by Martin and others.

Pregnancy and the Bladder.—Of the 500 cases under consideration there were sixty-nine pregnant women, and of these 37 (52 per cent.) complained of abnormal urination.

	Cases.
Frequent or very frequent.....	15
Frequent and painful.....	5
Frequent at night.....	1
Infrequent.....	1
Cannot hold urine.....	3
Cannot hold urine (always so).....	1
Painful or burning micturition.....	6
Constant desire.....	2

As to the period of gestation, 13 were three months or under; 14 over three months and under seven months; 3 between seven months and full term; 7 period not recorded.

Case 2028 was of interest, the three months pregnant uterus being firmly wedged in the pelvis by adhesions, requiring tamponade in the knee-chest posture, for six weeks, to accomplish its release. After this was accomplished she had no further discomfort, and expects to be delivered at term the last week in April (16th).

Case 2053.—Patient suffered with pain in her back, cystoectocoele and constant desire to urinate; all relieved by a round, hollow, hard rubber pessary.

Case 1879.—Pregnant three months, urethritis, Bartholinitis, relieved by ichthyol to the urethra, and the authors' button-hole operation for the cure of Bartholinitis.

Case 1926, eighteen years old, pregnant; vulva chancroid and urethral caruncle. Treatment: Iodized phenol to chancroid and caruncle. Dusted with calomel t.i.d.

Pregnancy, Albuminuria, Syphilis.—Mrs. C. E., aged thirty-three years, twice married, four children last thirteen months ago; several miscarriages; acquired syphilis from first husband; uremic convulsions after last child, and blindness for some time. Symptoms: Pressure on the bladder; great pain on lying down, a weighty feeling, as if going to be unwell, and abdominal soreness. Papulopustular rash on face; ankles swollen; last menstruation, Dec. 4, 1903, three months ago. Examination showed uterus enlarged, pregnant about three months; albumin in urine. Treatment: Abdominal binder to support lax abdomen; antiluetic treatment throughout pregnancy for the child's sake and to prevent recurrence of convulsions. Under this regime the urine cleared, a typical syphilitic child was born Aug. 30, 1903, and under calomel, developed with fair degree of health.

Alexander's Operation.—Pressure of a uterus too tightly held against the bladder may interfere with its capacity as in Case 1675. M. B., aged thirty-two years, six children, last four years old. Alexander's operation, at Bellevue Hospital, fourteen months ago, following perineorrhaphy six months prior. Symptoms: Constant desire to urinate; suprapubic pain especially on the right side, for the past two years;

medicine daily to move bowels. Examination: Medium-sized uterus held firmly against the bladder, causing painful dragging; abdominal wall relaxed; right kidney three inches below the chondral border. Diagnosis: Bladder irritation and pain due to uterine pressure on bladder and dragging on round ligaments, with enteroptosis. Treatment: Pessary inserted; special corset advised; one week later reported wearing of pessary too painful.

Sixteen months later—a soft cystic mass on the right-ovarian. Advised operation for removal of cyst and uterus as the only hope for radical relief.

Ventrofixation Uteri.—One of the disagreeable results following suture of the uterus to the anterior abdominal wall, not infrequently is that it interferes with the bladder as a reservoir and modifies its ability to expel urine. Case 2016, F. B., aged thirty-three years, complains of very little urine one day, very much next day, and at times burning when passing water. She has been operated on, the womb lifted, curetted and fistula and abscess removed. Pain over the sacrum, uncomfortable "fulness" during coition; three to four stools weekly. Examination shows fundus uteri attached to the anterior abdominal wall very painful to touch.

These cases represent a few of the factors, which modify the functions of the bladder of the female, and lead to the following conclusions:

1. That frequent and painful micturition is met with in about one-third of females who apply for gynecologic advice.

2. That in 25 per cent. this is due to specific (gonorrhea) urethritis, often associated with vaginitis, etc.

3. That but few cases of gonorrheic infection are met with after thirty-two years.

4. That vesical prolapse and intrapelvic or abdominal tumors are the most common factors after thirty years.

5. That uterine displacement, inflammation involving the broad, the uterosacral ligaments, the tubes and ovaries must be reckoned with, and relieved by appropriate measures before the bladder symptoms can be cured.

6. That as changes in the urine producing symptoms do not occur in more than 5 per cent. of all cases, after medical treatment has been tried for a time and found wanting, the pelvis should be explored digitally, and the anal region inspected, not infrequently the rectum and sigmoid as well. Whenever urinalysis points to calculi or infection in the bladder, ureter, or kidney it is our custom to pass the cystoscope and catheterize the ureter.

60 West Fifty-sixth Street.

Harvey Society.—The second lecture of the Harvey Society course will be given by Professor Carl von Noorden, of Frankfurt-a.-M., Germany, at the New York Academy of Medicine, on Saturday, October 14, at 8.30 P.M. Subject: "Modern Problems of Metabolism."

IDEAL DENTAL NARCOSIS.

BY MAURICE GREEN, D.D.S.,

OF NEW YORK;

CHIEF OF CLINICAL STAFF OF NEW YORK COLLEGE OF DENTISTRY.

CONSIDERING that nitrous oxide has been the main general anesthetic used by the dental surgeon for many years, with practically no fatalities, it will be a hard matter to convince the profession that there is another anesthetic which, if properly used, *equals* nitrous oxide in safety and far surpasses it in many other respects.

I refer to pure ethyl chloride, which has of late been frequently heard from in the field of general anesthesia and with which I have experimented for about five years, giving between two and three hundred anesthetics with continued good results up to the present day. With the apparatus and method of administration I now use, I have discarded nitrous oxide entirely for the following reasons:

The ethyl chloride apparatus is portable, simple, cheap, durable and cleanly, can be entirely taken apart and sterilized.

The duration of period of narcosis is from one and a half to three minutes, and requires less than one minute to get the patient under. The cost per anesthesia is less than nitrous oxide, seldom exceeding ten cents.

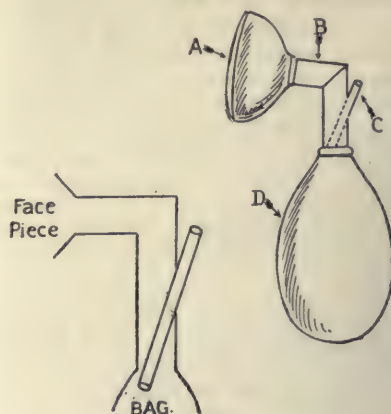
There is absolutely no cyanosis, the tongue remains normal in size, it is noiseless in administering, hemorrhages are of normal duration, patient is completely anesthetized and feels no pain, sees and hears nothing. It is absolutely safe, from my experience, and available statistics of many thousand cases.

To one who has never given or seen ethyl chloride administered these claims may appear preposterous, but to those who have already begun to use this anesthetic under the proper methods of administration, they appear as pure and simple facts.

The inhaler which I have used of late and found the most practical is very simple in its construction, and also the most economical, as the ethyl chloride can be sprayed in from a large tube and you need use no more than is required for one patient; the diagram in next column is explanatory.

Merely spray a small amount of ethyl chloride into the admission tube, cover opening of same with your thumb, allow patient to take six or eight inhalations, then repeat this procedure until patient snores; when the stage for operation has begun, work leisurely, as patient will be sufficiently anesthetized for a number of extractions. Three grams of ethyl chloride usually suffices; five grams is about the maximum amount required. A container with self-closing device is most practical; if possible, have it graduated and with heavy spray, as this economizes time. Contra-indications same as for nitrous oxide. Patient revives normally without after-effects; vomiting may occur, but of no severity.

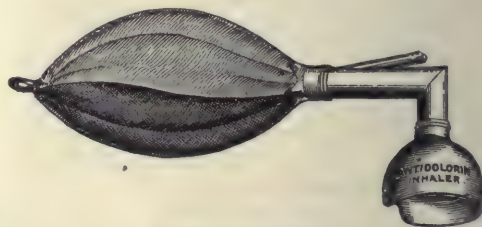
Fig. 1.



Mechanism of Inhaler.

A.—Face piece, flexible rubber; B.—Metal tubing about one inch in diameter; C.—Metal tube conducting ethyl chloride from container into bag; D.—Flexible rubber bag.

Fig. 2.



Inhaler complete.

It has been my fortune to see this anesthetic administered a great many times before I ventured into the field, and I will say that any dentist giving it a fair trial, with an apparatus on similar principles as the one I have described, will sooner or later discard the cumbersome nitrous oxide apparatus now so generally used.

As a preliminary anesthetic to chloroform or ether ethyl chloride is fast supplanting nitrous oxide with the medical profession and anesthetists in general.

The question I am most frequently asked is, what becomes of the CO_2 exhaled into the bag and rebreathed. This forms a seeming beneficial combination with the ethyl chloride and makes a stronger anesthetic, thereby requiring a lesser quantity of the drug, also assuring the patient more safety on account of less ethyl chloride being administered. No deleterious effects on this account have been noticed, and these facts have been especially dwelt on by Hewitt, of England, and Ware, of New York, both of whom have adopted the bag method with success.

With ethyl chloride, ordinary precautions for the patient's welfare are required, about the same as with nitrous oxide. A mouthprop is necessary, the muscles being slightly contracted at the beginning, but if the anesthesia is pushed to a long period the muscles relax. The res-

piration increases, pulsation slightly increases in number but not in force, higher centers appear stimulated (a distinct advantage) and patient looks normal during entire period.

Children are excellent subjects, alcoholics poor and unruly subjects; neurotics may be restless, but can be anesthetized without trouble.

I say again that if this anesthetic be given a fair trial, there will be less fractured alveolar processes and torn gums in tooth extraction, as patients are anesthetized for a sufficient period to allow the operator to work very deliberately, and the patient's tongue never swells up so as to interfere with the instruments used.

1190 Lexington Avenue.

MEDICAL PROGRESS.

SURGERY.

Shoulder Luxations in Childhood.—A treatment for congenital and acquired luxations of the shoulder-joint is formulated by ROYAL WHITMAN (*Annals of Surg.*, July, 1905). Three cases are described: True congenital, those acquired by violence at birth, and those resulting from injury to the brachial plexus in delivery. The last class is relatively the most frequent. In all cases the first indication is to reduce the deformity. In cases of the third class the ultimate aim is to overcome the inward rotation of the humerus in order that supinations of the forearm may be utilized. The treatment advocated is similar to that of bloodless reduction at the hip-joint. The child, having been anesthetized, is brought to the edge of the table. The shoulder is grasped firmly with one hand and with the other the arm is drawn upward and backward with a pump-handle movement. When the parts become relaxed the head of the bone is levered forward by the thumb. Then abduction is overcome and the head is forced upward. The extremity is then fixed in the overcorrected position by means of plaster bandages, including the thorax. The object of fixation is to allow contraction of the posterior part of the capsule and obliteration of the old articulations; consequently, the part must be fixed at least three months. The after-treatment is of great importance. This consists of daily passive forcible movements to the extreme limits in the directions formerly restricted. When motion becomes fairly free, massage and re-education in function are indicated.

Acute Diffuse Suppurative Peritonitis.—S. J. YOUNG (*Journal A. M. A.*, August 26) has interrogated a number of prominent surgeons as to their opinions as to the propriety of operation in acute diffuse suppurative peritonitis, its contraindications, their methods and experience, and from their answers and his study of the subject, formulates the following general conclusions as to the surgical treatment of the conditions: (1) Early operations, and it must be remembered that this implies an early diagnosis. Do not wait for shock, which is a symptom of overwhelming infection. Learn to recognize the early symptoms as stated by Murphy: "Pain, nausea and vomiting, localized tenderness, circumscribed flatness on piano percussion, elevation of temperature and hyperleucocytosis in the order named." I repeat it, operate early. (2) Method—Simple incision with simple drainage, placed in the pelvis and in such other fossæ as seem

to require drainage. Perforations should be closed, and the appendix removed if it be the offender, provided these things can be done without too much handling of the viscera. (3) Fowler position to retard lymphatic absorption. (4) Physiological salt solution by rectum, one and one-half pints every two to four hours for twenty-four to forty-eight hours. (5) Antistreptococcic serum in suitable cases in hope to combat the effects of toxins absorbed.

Aciduria as a Cause of Death Following Chloroform and Ether Anesthesia.—LEONARD G. GUTHRIE contends that the administration of ether, as well as chloroform is dangerous (*Lancet*, Aug. 26, 1905) under certain conditions not yet fully determined. The symptoms suggest acid intoxication by the poisonous precursors of acetone, the origin of which is in the disintegration of fat. In practically all cases of death by anesthetics advanced fatty metamorphosis is found in most organs, and particularly in the liver. Although prolonged administration of chloroform certainly produces fatty change, it is incredible that such profound alterations could be induced by the small amount given during short operations. Ether is not capable of initiating similar changes, yet they are found apparently to the same extent in deaths resulting from its use. Therefore it follows that such fatty metamorphosis must have existed prior to the anesthetization. The disintegration of fat into acid poisons may be due to the direct action of chloroform and ether in altering normal metabolism, or in favoring the action of intestinal toxins in the disintegration of fat. In any case the pre-existence of advanced fatty change must be assumed. Probably the fatty changes are physiological and of the nature of infiltration rather than of degeneration, and if this be true it is possible to understand why anesthetics should be dangerous at one time and not at another. In accordance therewith he concludes that before operation upon children careful inquiry should be made as to the history of so-called bilious attacks, which in reality may be those of acidosis, and that in all cases where overfattening and want of exercise is suspected the operation, when possible, should be delayed until a fat-free diet can be given for some days. Since both starvation and fright give rise to acetonuria, the four-hour fast imposed upon children is considered too long. Nutrient enemata should be given two hours before and immediately after operation. The treatment of acid intoxication following operations should be by venesection, saline transfusion and by enemata of solution of bicarbonate of sodium.

The Matas Operation for the Cure of Aneurism.—JOHN H. GIBBON (*Am. Med.*, Aug. 19, 1905) states the operation briefly consists first in controlling the flow of blood in the diseased vessel by compression; the free incision of the sac from end to end; the evacuation of its contents; the closure by suture of the arterial openings in it; and then the obliteration of the sac by plication and infolding of the skin. In the case of a sacciform aneurism but one opening requires closure, and when this is done the caliber of the vessel is re-established. In the fusiform aneurism there are two courses open to the operator—one the closure of the two courses of the artery into the sac, and of any collaterals which might originate within the sac, and then the entire obliteration of the sac by continuous rows of sutures; or, he may follow the suggestion of Matas of reconstructing the arterial caliber by utilizing a portion of the aneurismal sac and suturing it over a catheter which

is withdrawn before the last sutures are tied. Even when it is impossible to re-establish the vessel itself, this procedure of Matas possesses great advantages. The aneurismal sac is as completely done away with as if it were extirpated, and there is less interference with collateral circulation than by any of the various methods of ligation. The operation of Matas is applicable to all aneurisms in which there is a distinct sac, and in which the cardiac end of the main vessel can be thoroughly controlled. The case reported is that of a negro, aged thirty-one years, who suffered from a large popliteal aneurism. The sac was laid freely open and the arterial openings sutured. The sac was then obliterated by repeated rows of plicating sutures. The wound was closed without drainage. Suppuration took place, but the patient made a complete recovery after superficial drainage was established. Some months after the operation there was no evidence of a recurrence. Suppuration has occurred in a number of cases reported, but does not in any way seem to interfere with the cure. Dr. Gibbon says that in another case he would introduce a superficial drain.

Malposition of the Appendix.—JOSEPH A. BLAKE reports cases operated for supposed appendicitis (*Annal. of Surg.*, Sept., 1905) in which the symptoms were entirely relieved, though no inflammatory condition existed. In these patients usually the appendicitis and cecum is either drawn up under the ileocolic junction by a short meso-appendix or is in a retrocecal position, causing the end of the cecum to be rolled up under itself. In two of the cases there existed well-marked enteroptosis, and in two the right kidney was distinctly movable. In most cases traction was exerted on the cecum through the appendix by a short meso-appendix. An explanation of this anatomical condition is found in the development of this part of the alimentary tract. During late intrauterine life the cecum descends from a position immediately below the liver, which is due chiefly to an increase in length of the descending colon, its vessels increasing proportionately. A disparity of growth occurs in these cases, and a folding of the gut results at the junction of the cecum with the appendix. As these vessels normally pass behind the ileocolic junction the appendix is held up behind that point, and through it the end of the cecum, and in many instances a sharp kink occurs at the point of entrance of the main vessels. It appears that in some cases a constriction of the ileum might readily occur from an overdistended cecum. Thus it would seem that the symptoms complained of could be caused by the tugging on the appendix produced by an overdistended or overloaded cecum; by a partial obstruction produced either in the ileum or the colon by their bending over a fixed appendix; or possibly by interference with the circulation of the cecum and ascending colon. Analysis of the symptoms shows evidence rather of functional disturbance than of an inflammatory condition. This relation may also explain the appendical pain observed in some cases of movable kidney in which appendectomy gives relief. In enteroptosis a short meso-appendix may readily cause tugging upon the appendix and cecum. Finally, the constant tug on the appendix and cecum is undoubtedly a cause of true appendicitis.

Hot Salt Solution for Ulcers.—Dr. A. VEYRASSAT (*Revue Médicale de la Suisse, Romande*, June, 1905) writes on the use of hot physiological salt solution for the treatment of ulcers of the leg, which he ex-

tols over all antiseptics. These, if strong enough to be bactericidal, must necessarily cause death of tissues already lowered in vitality. The salt solution (7 in 1,000) used at a temperature of 50° C. has a physiological effect on the tissues promoting phagocytosis, and at the temperature employed is fatal to some bacteria, though not to spores. The ulcer is irrigated with the best solution for a quarter of an hour, and a sterilized dressing (gauze, cotton wool and a bandage) is then applied. This is done daily until the ulcer cleans, then as often as necessary. Healing proceeds rapidly, and the method is especially suitable for cases which cannot afford time to lie in bed.

Dry Iodine Catgut.—Since much criticism has been expressed as to the availability of Claudius catgut for surgical use, ALEXIS V. MOSCHCOWITZ, having slightly modified the method of preparation, publishes (*Annal. of Surg.*, Sept., 1905) a report of experiments conducted to show its comparative value. Points to be considered in an ideal catgut are, (1) it should be absolutely sterile; (2) it should lose no tensile strength in preparation; (3) it should be readily and simply prepared, and (4) it should be absorbed completely, but only after serving the purpose intended. Three classes of experiments were conducted, (a) to prove the sterility of the catgut in question; (b) to show the effect of the catgut on growing cultures, and (c) to determine the effect of infected catgut. Cultures made from this gut proved negative; placed upon inoculated media it exercised a strong inhibitory action; and, after being soaked in cultures of bacteria for twenty-four hours it produced no growth when added to nutrient media. These conclusions were deduced from an exhaustive series of experiments. In order to compare the tensile strength of dry iodine catgut with Von Bergmann catgut and raw catgut a special form of apparatus was constructed. Experiments showed that catgut, size number 0, in these three forms possessed an average tensile strength of 3,665, 3,180 and 3,081 grams, respectively; size number 1, 5,446, 4,592 and 4,961 grams, respectively; and size number 2, 7,320, 7,132 and 6,526, respectively. When knotted the tensile strength average 2,220, 2,244 and 1,984 grams, respectively for size number 0; 3,557, 3,446 and 2,996 grams, respectively, for size number 1; and 4,678, 5,217 and 3,800 grams, respectively, for size number 2. The preparation of the gut has been slightly changed, since it was found that prolonged immersion in the iodine solutions caused a deterioration in tensile strength. The method now in use is to soak the raw unwashed gut in potassium iodide one part, iodine one part, and water one hundred parts for eight days, then to preserve it dry in sterile vessels until used. In regard to absorption, it may be said in general that iodine catgut does not differ materially from catgut prepared by other methods. The conclusions drawn are, (1) iodine catgut is absolutely sterile; (2) it is impossible to infect it by ordinary means; (3) its content of iodine is not sufficient to act as an irritant upon the tissues; (4) its tensile strength is superior to raw catgut and to that prepared by the sublimate-alcohol method; (5) it is easily and cheaply prepared; and (6) it is absorbed only after it has served the purposes for which it was intended.

Radical Treatment of Cancer of Rectum.—In presenting a study of 46 cases of cancer of the rectum which came to operation, JOHN A. HARTWELL (*Annal. of Surg.*, Sept., 1905) discusses means for lowering

the mortality. The operation itself is a dangerous one, but the chief points concerned in the high mortality are late diagnosis and operations and sepsis. The former can be materially obviated by careful digital and instrumental examinations in all patients suffering from lower bowel trouble. Sepsis, as a cause of death, is placed at from 50 to 70 per cent. This sufficiently shows that the elimination of sepsis is a most important factor. The writer considers that the best way to accomplish this is by a complete deflection of the fecal current; that is, by the formation of a complete inguinal colostomy three weeks previous to the rectal operation. Much may be gained by putting the bowels in good condition and cleansing the rectum of its purulent discharge by a week's or more treatment, but, at best, these only do away with a certain amount of infection during the operation itself. A frequent objection advanced is that a preliminary colostomy interferes with a sufficient drawing down of the gut for radical removal later. This objection carries no weight if the colostomy is done in such a way as to avoid it. Moreover, if indicated, the distal end of the artificial anus may be used for additional cleansing of the bowel prior to rectal resection, and, again, valuable information as to the extent of secondary involvement may be obtained by exploration through the wound. Finally, this procedure is usually followed by such a marked general improvement of the patient during convalescence that it more than compensates for the loss of time. An equally important means of combating sepsis is the exercising of the greatest care in avoiding contamination of the wound from the gut during operation. In regard to the operation itself, there should be removed along with the growth all the glands and tissue which is liable to later cancer infection to obtain the best results.

Congenital Dislocation of the Hip.—P. W. WILLIS (*Journal A. M. A.*, August 26), first notes the objections to the Lorenz manipulative method of treating this condition, and then describes his own operative technic and results, following practically the lines laid down by Royal Whitman and Jackson Clarke. It consists in stretching the muscles on the internal, anterior and posterior aspects of the joint until sufficient relaxation for reduction is produced. This is usually accomplished when the trochanter can be drawn down to Nélaton's line. Reduction is attempted by forced abduction of the thigh, which is at the same time completely flexed on the abdomen and rotated inward. After reduction the anterior fibers of the capsule are stretched and the plaster cast applied. Only in a very easy case, however, would the operation be completed at one time, and the usual plan is to use a moderate amount of manipulation and to make a few gentle attempts at reduction, and then to put the hip in a cast in the position of abduction. After two or three weeks the cast is removed and another attempt at reduction is made. The abductors will now be found well relaxed, and the manipulations mainly required on the posterior and anterior muscles. The same method is repeated again, and if after three or four such attempts reduction fails, it is undoubtedly wise to resort to the open incision. When reduction has been secured, the cast is changed about once in two months, or oftener if much soiled or broken, a radiograph is taken, and the hip is gently moved in different ways, avoiding abduction. On account of the risk of relapse, treatment in the cast is con-

tinued for at least a year after final reduction, even in favorable cases. Three cases of children are reported with five hips reduced, one of them by the open method, with three perfect anatomic results. The permanent functional results will only be known after months or years. This method of repeated gentle manipulations has the merit of little danger, and the patient is better prepared for the open method if that is found necessary.

Contusion of the Knee-Joint.—In reporting four cases of contusion and laceration of the mucous and alar ligaments and synovial fringes of the knee-joint openly operated with good functional result, CARLETON P. FLINT (*Annals of Surg.*, Sept., 1905) expresses the opinion that every traumatic knee showing localized tenderness with effusion into the joint should be aspirated, provided there is not a marked diminution in the amount of effusion under treatment at the end of one week. Should the condition be a hemarthrosis, it is better to make a small incision and wash the joint clean, since clots and thick fluid do not run out well through a trocar. Fluid, if allowed to stay in the joint too long, does harm. First, the capsule and ligaments become chronically distended and lax, and secondly, the contained fibrin becomes deposited on the wall of the joint, or floats free, becomes covered with epithelium, and so gives rise to foreign bodies in the joint. Should fluid reaccumulate it must be drawn off again. There would be no reason for interference if injured synovial membranes always repaired spontaneously and was not etiologically connected with "chronic knees," but such is unfortunately not the case. The crushed, torn and infiltrated alar and mucous ligaments act as foreign bodies, being perpetually injured, giving rise to pain and repeated attacks of effusion, resulting in such secondary changes as chronic effusion, relaxed ligaments, increased lateral motion, intermittent pain, and changes in cartilage and synovial membrane. For these reasons it is concluded that if, on walking about, fluid reaccumulates and tenderness and pain reappear at intervals after four or six weeks of conservative treatment, open operation should be advised.

A New Interdental Splint.—The requisites of an interdental splint for fracture of the inferior maxilla are that it should absolutely immobilize the fragments, allow of free cleansing, be easily and readily made, be worn with comfort and capable of quick removal. RAYMOND RUSS describes a splint (*Annals of Surg.*, Aug., 1905), which he claims meets these points. The splint is made of spring brass $\frac{3}{64}$ of an inch in thickness. Each clamp consists of two parts, a chin-piece and a piece bent at right angles, making a long and short arm. The chin-piece is wider at one end to prevent its slipping when incorporated into the plaster-of-Paris dressing. It is 8 cm. long, and provided with a number of holes so that the plaster may sink into them, thus making the dressing more secure. The right-angled piece is 1 cm. wide, the arms measuring 7.5 cm. and 5 cm., respectively. The end of the short arm is provided with a simple lock, which fits into a corresponding lock in the chin-piece. Three or four holes should be bored into the long arm. When these two parts are locked, they form a clamp easily adjusted. The adjustment is accomplished by means of a round head brass machine-screw 6 cm. in length and carrying a winged nut. This fits into the holes of the long arm and chin-piece at 1.5 cm. distance

from the short arm. The clamp should be nickel-plated. The fracture having been reduced, plaster-of-Paris is folded over the chin and under the jaw, extending as far back as the rami. Then the clamp is applied and the chin-piece pressed into the plaster. When dry the clamp is removed, the under surface of the long arms covered with dental compound and quickly applied and pressed firmly into position so that the splint rests upon an even bed, the dental compound filling the holes which have been bored in the long arm. The short arms are locked to the chin-piece and the screws are then tightened to the necessary degree.

The Late Poisonous Effects of Anesthetics.—A. D. BEVAN and H. B. FAVILL (*Journal A. M. A.*, September 2) report the case of a girl, aged twelve and a half years, from whom a gangrenous ovarian tumor with twisted pedicle was removed. The operation was done under chloroform and took a long time and an unusually large amount of the anesthetic. The patient did well until forty-four hours after the operation, when there appeared an acute toxic delirium with rapid pulse, tonic muscular contractions, moderately high temperature, and later, increased temperature, Cheyne-Stokes breathing, irregular heart action and death 110 hours after the operation. The autopsy, by Dr. Hektoen, seven hours after death, showed advanced fatty change in the liver, at the periphery of the lobules, and congestion, etc., of kidneys, spleen and lungs. The authors give an extended review of the literature of similar cases, and conclude that anesthetics, especially chloroform (ether to a very limited degree), can produce a destructive effect on the liver and kidney cells, and on the muscle cells of the heart and other muscles, causing fatty degeneration and necrosis, very like that occurring in phosphorus poisoning. The most constant and important injury is that to the liver, and is in direct proportion to the amount of anesthetic used and the length of the anesthesia. Some individuals appear to be specially susceptible to these effects, and certain conditions, such as age—the younger the patient the greater the danger—those lowering the general vitality, various intoxications, exhaustion, lesions involving fatty degenerations and chronic affections of the liver and kidneys are also probable predisposing causes. As a result of the liver lesions, toxins are produced either from the liver cells themselves or as a result of their failure in their normal eliminative functions, and these may produce a definite symptom-complex, consisting of vomiting, restlessness, delirium, convulsions, coma, Cheyne-Stokes respiration, cyanosis, icterus in varying degree, and usually terminating in death. It is probable that milder degrees of this poisoning are observed as transient after-effects of chloroform. The condition is a hepatic toxemia, and in the opinion of the authors, as definite a pathologic entity as a pancreatitis with fat necrosis. Acetone, diacetic acid and beta-oxybutyric acid are by-products, but not essential poisons in this toxemia. The liver lesion is the one responsible for the symptoms and the fatal result. In the fatal cases, death is almost invariably due to chloroform; ether is seldom the cause of death of this kind. Hence, chloroform should never be used with conditions such as have been mentioned as favoring this toxemia, nor for very prolonged operations. The importance of limiting the duration of the anesthesia, when chloroform is employed, is especially emphasized by the authors.

Mechanics of Dorsal Pott's Disease.—In a paper discussing the universal ineffectiveness of most forms of apparatus employed in the treatment of dorsal Pott's disease, JOHN C. SCHAPPS (*Med. Rec.*, Sept. 9, 1905) describes an appliance which secures fixation and allows no compensatory deformity. This apparatus is used in combination with the Taylor back brace, with long cross pieces and U-shaped hip band. Commencing at the lower end, the front brace presents a flat steel band, which crosses the abdomen as low as possible without being displaced by the thighs when the patient sits, and extends around the sides of the pelvis and downward for two or three inches to a level with the horns of the posterior hip-band, with which it is connected by straps. The pelvis is thus clamped between the bands. The anterior superior spines are protected by pads of kersey and leather, and the middle portion of the front band is arched forward so that when the patient is supine there is a space behind it of an inch and a half or more. At the location of the anterior superior spines flat uprights are riveted at right angles, or, if the abdomen is very protuberant, the uprights are directed slightly outward. They reach nearly to the top of the chest, and at the level of the axilla are crossed by a flat band extending around the sides of the chest and nearly meeting the cross piece of the posterior brace. Holes half an inch apart in the uprights will facilitate the placing of this chest band. A perforated stiff leather shield, attached by rivets, secures the chest band to the uprights, and is supported at the top and bottom by adjustable straps between them. Near the lower end of the uprights are padded web straps passing over the iliac crests to buckles upon the uprights of the back brace. When vertical support is desired, these straps are attached to the front and back pelvic bands. The ends of the chest bands may be padded like crutches, or padded shoulder straps from the top of the back brace may pass through the axilla to a second cross-piece behind. For women, the uprights pass directly up the sides to the axilla and are connected at the top by a piece of sheet steel. The descriptions is elucidated by means of drawings.

Removal of a Pin from the Lower Lobe of the Lung.—R. HAMILTON RUSSELL and WILLIAM R. FOX (*Lancet*, Sept. 9, 1905) report this unusual case. The patient, aged twelve years, inspired a large shawl pin. No symptoms appeared until a week later, when cough supervened, and a week later blood-tinged sputa observed. A skiagraph revealed the pin in the left bronchus. An attempt to remove it by an electro-magnet proved unsuccessful. A second skiagraph showed that the pin had worked down into the lower lobe of the left lung. The following operation was then performed: A free curved incision, convexity downward, was made, and a portion of the left eighth rib six inches long was resected. The pleura was cautiously opened and the lung allowed to collapse. The fingers of the left hand were passed between the lung and the diaphragm, the lower lobe grasped near its root and gently drawn toward the opening. It was now possible to recognize the rigidity caused by the presence of the pin. Maintaining a firm hold with the left hand the position of the head was ascertained by gently palpating the surface of the lung with the right hand. A small incision was made in the lung over the pin's head; a sinus forceps, unopened, was pushed in until the pin was felt, and, grasping it below the head, the

pin was easily removed. No hemorrhage ensued, but it is notable that abscess formation had already begun around the foreign body. No suture was placed in the lung. The flap of integument was replaced and sutured with the exception of about two inches in the middle. Over this an oiled silk flap was placed; by this means free escape of air from the pleura was insured, and by its valvular action the passage of air back into the pleura impeded, thus encouraging expansion of the lung. Immediately after the operation there was some restlessness, and for two or three days dyspnea and general distress, which, however, steadily diminished. There was moderate fever, and examination of the chest revealed general consolidation of the lower lobes. By the fourth day convalescence fairly set in. The boy was discharged entirely cured on the twelfth day.

MEDICINE.

Medicine in the Philippines.—J. R. McDILL (*Journal A. M. A.*, August 19, 1905) describes the condition of medical affairs in the Philippines. He does not believe that the climate is necessarily fatal or unduly enervating to Americans, especially as the Benquet Sanitarium will soon be available. He describes the work of the Board of Health and the laboratory facilities which it affords, and speaks especially of the need of general and special hospitals. The history of the medical organizations since the American occupation and the status of medical education in the islands are also noted. It appears that as yet there has been no marked affiliation between the native and American physicians, and McDill thinks this will hardly occur till a new generation, educated in English and in modern methods, has arisen. At present, the ratio of physicians to population outside the city of Manila is 1 to 51,786 or one physician to each 430 square miles, and to supply the medical and sanitary needs of the country 2,000 or 3,000 native physicians and sanitarians should be educated there during the next twenty years. There is a unique opportunity for the establishment of the ideal university and affiliated professional schools in the Philippines, and there will be no lack of earnest capable students. The medical profession is waiting for some one to contribute for the establishment of a Philippine university and medical school.

Distribution of the Eruption of Smallpox.—From a study of the limitation of the eruption of smallpox to the skin, mouth, lower part of the rectum and vagina W. E. KORTE (*Med. Mag.*, September, 1905) concludes that the skin alone affords a suitable nidus for the growth of the vaccinia and variola virus, chiefly because in this tissue the leucocytes are kept at a distance from the developing germ, that the virus of smallpox does not grow and multiply in the blood stream, either *in vivo* or *in vitro*, though the blood acts as the distributing agent for the germs. If the instance where variola was conveyed to a second individual during the incubation period by means of a skin graft is reliable, it would appear as though the germs reaching the circulation by way of the respiratory tract are deposited shortly after their inhalation in the skin, there to undergo development, possibly as an intracellular parasite or sporozoon, as described by Councilman and Magrath. This view is further supported by the observation that given exposure to variola infection such individuals who have had a short exposure will develop milder attacks of the disease than those exposed for a longer time to the same source of the in-

fection. This theory also affords a rational explanation of the distribution of the eruption cited in some cases, for owing to the warmth of certain articles of clothing, as a jersey in a case mentioned, the capillary circulation would be slightly different in that part of the skin covered by the shirt to that of the rest of the cutaneous circulation. It also serves to explain in a measure the periods of incubation and eruption, for if the observations of the American observers be correct the incubation period is occupied in the cytoplasmic and intranuclear stages of the evolution of their sporozoon, the *Cytorrhyses variola*, while the period of eruption is occupied by a further stage in the evolution of the parasite, the extracellular or ameboid stage, as previously described by the author.

Individual Treatment of Diabetes.—HENRY S. STARK claims that the omission to individualize cases of diabetes mellitus (*Med. Rec.*, September 23, 1905) has manifested itself in a lack of specific medication, and in a failure to lessen its occurrence. The old classification into mild, moderate and severe types, based upon the amount and constancy of sugar in the urine, is too arbitrary to be of service. Likewise the classification, based upon the presumed seat of the lesion, is objectionable. The proper treatment of the patient must be governed by the individual. To obtain results certain items must be considered, namely, (1) the power of carbohydrate assimilation; (2) the general physical condition; (3) the mental attitude; (4) the ability to maintain weight; (5) the digestive sufficiency; (6) the ability to maintain a nitrogenous equilibrium; (7) the age, physique, occupation and mode of life; (8) complications, and (9) the preferences for foods and beverages. Inasmuch as the pathogenesis of the disease is still in question, efforts must be directed against symptoms alone. Many drugs have been advocated as specifics, only to prove worthless. Among such are arsenic, aspirin, salicylate of soda, permanganate of potassium, the coal-tar preparations, sulphate of sodium, iodide of potassium, bichloride of mercury, jambul and yeast. Opium is the favorite drug of to-day, but its curative influence has been grossly exaggerated. That it has some claim to merit cannot be gainsaid, but unless a prompt improvement follows its administration, it should be discontinued. Though it may diminish the secretion of urine, it diminishes coincidentally all the secretion, giving rise to a general depreciation of the physiological functions. The treatment is divided into prophylactic, symptomatic and dietetic. The prophylactic treatment consists chiefly in the recognition of the diabetic predisposition and an early diagnosis. When first discovered, a complete change of surroundings is desirable. Symptomatically prominent are hunger and thirst. Thirst is excited by the excess of sugar in the blood, whereas hunger is caused by the excretion of food before its function has been performed. These cravings must not be indulged. Thirst is to be combated by giving ice, small drinks, effervescing or acidulated, at stated intervals, and by total exclusion of carbohydrates for a period of ten days, in conjunction with increasing doses of codeine. To relieve the hunger asafetida pills of one grain have been suggested. The emaciation and weakness is treated best by forced feeding with fats and oils, even at the expense of neglecting the glycosuria. The best agent is cod-liver oil. For the neuritis opium alone gives little relief, but when combined with hyoscyamus better results are at-

tained. There are no specifics to ameliorate glycosuria and polyuria. Opium is the drug most resorted to. The skin affections, the more important of which are dermatitis and eczema, require soothing lotions. The treatment of coma is based upon the presumption that it is due to an acidosis. The validity of this is not yet proven; therefore it is not justifiable to deduce from an unaccepted theory a rational principle of treatment. Symptoms of the precomatose stage are met by rest, milk diet and protection against cold, fatigue and nervous and gastric disturbances. Heroic alkali therapy is employed, whisky or brandy is useful, and a hypodermic injection of natrobenzoate of caffeine or of camphor in ether should be given at once. All opium should be discontinued. Free catharsis is essential, and oxygen may be freely given for dyspnea. The treatment of the comatose stage is almost hopeless. Measures advised are blood-letting, intravenous injection of alkaline fluids, cardiac tonics hypodermatically complete evacuation of the bowels, colon irrigation and oxygen inhalations. Opinion is a unit in declaring that dietetics is the keynote to the intelligent treatment of diabetes. No longer is it a matter of dietetic restriction, but one of dietetic regulation. Control of carbohydrates is sought rather than total abstinence. Proteids, fats and starches each have a physiological purpose; therefore a pathological reaction must follow when the economy is deprived of any of these principles. The rigid exclusion of sugars and starches is a thing of the past; on the contrary, carbohydrates are often substituted for fats in cases of marked acetonuria. The first aim should be to ascertain approximately the daily excretion of abnormal urinary ingredients, the acetone bodies in particular, also the amount of urea. Next, determine the patient's tolerance for carbohydrates. This brings to light two possibilities. Either the subject has no tolerance for sugar or a mild tolerance. It is now possible to arrive at a rational dietary for the patient. Cases belonging to the first group can be much benefited by a carefully selected diet. Cases belonging to the second group are scarcely amenable to dietetic treatment. Here the question depends upon the physical condition of the patient. The chief aim should be to prevent systemic intoxication and to keep up the general health.

PHYSIOLOGY.

The Structure and Function of Nerve Fibers.—

The fineness of texture of the minute fibers that make up the nerve trunk, and the utter absence of any evidence of chemical change in the nerve during its activity, have baffled all serious attempts to explain the nature of the nerve impulse. The latest effort in this direction is made by J. S. MACDONALD (*Proc. Royal Soc.*, Aug. 3, 1905), who, on the basis of recent investigations on the distribution of certain inorganic substances in the nerve trunk, constructs a very ingenious theory to explain the mystery of the nerve message. This theory is very much akin to that advanced several years ago by A. P. Matthews, who maintained that the nerve impulse consists in the negative ionization of the successive parts of the nerve, with an associated transformation of hyrosols into hydrogels. The theory advanced by Macdonald is based on recent studies on the distribution of potassium in the nerve fiber, made by the author and also recently by MacCallum, of Canada. The latter found that the axis

cylinder does not contain any potassium, which is found in both the primitive and medullary sheaths, and also is largely deposited at the nodes of Ranvier. The detection of the potassium depends upon its precipitation by means of hexantrite of cobalt in the presence of sodium. Macdonald places a different interpretation on these findings. The fact is that the potassium is precipitated out at places which have become injured or which are the seat of excitation. Thus, wherever the nerve fiber is divided there will potassium be precipitated by the reagent. This shows that the axis cylinder is not devoid of potassium, although in conditions of rest it is not precipitated. With these facts as a starting point the author constructs his ingenious theory. The nerve fiber is pre-eminently a conducting cord, of which the axis cylinder is the essential part. In spite of the greatest amount of work in this respect no chemical change can be detected in the fiber. Evidently the transmission of the nerve-impulse is purely a physical process. The transmission of the impulse is associated with a precipitation or condensation of the potassium ions in each successive stretch of the nerve. In the words of the author, "This phenomenon represents a modified form of the process of excitation and its consequences upon the neighboring segments of the fiber; a reversible change during which electrolytes are set free into a state of simple solution, and are then recovered from this state back into their original condition. Here truly there is the appearance and the withdrawal of a source of energy, a relay placed at every point of the nerve to ensure the continuous propagation of the nervous state. Inorganic salts are set free to move; they move ever so little; the next segment of the fiber is charged as a consequence (let us say negatively); the colloidal state of the fiber is thus changed from its condition of equilibrium; as a result a setting free of electrolytes at this new point and the propagation of the process; in the meantime the communication of the negative charge to the onward segment has left the original segment positively charged, the state of colloidal equilibrium is thereby reproduced, and the last involved segment is brought to a condition of rest."

Blood Vessels During Shock.—Contrary to the view generally assumed, JOHN D. MALCOLM (*Lancet*, Aug. 25, 1905) believes that during shock the condition of the blood vessels is one of contraction instead of relaxation. He claims that the numerous experiments brought forward to prove the older theory lend support to this view. It has been assumed by other investigators that a fall of blood-pressure necessarily indicates that there is a relaxation of arterial tension. This view, however, is open to question. All observers are agreed that a contraction of the small arteries and a rise of arterial blood-pressure in the main vessels are constant effects of moderate stimulation of sensory nerves. It does not follow, however, that a fall of blood-pressure in any particular vessel must necessarily be due to a relaxed condition of the arteries. The amount of force exerted by the muscular wall of the artery has no relation to the intravascular pressure, such as it would have if the distribution of the blood was unalterable. Contraction of an artery can raise the intravascular pressure directly only if it meets with resistance. Increased resistance to the blood flow in a vessel and increased pressure of blood within the same vessel do not occur together, but in an inverse ratio to each other, and therefore the contraction of an artery

increases the resistance to the blood flow within it, but diminishes the blood-pressure within it. It might be thought that the fall of the blood-pressure in the carotid artery when a state of extreme shock is approaching could not be produced by the process indicated unless a decrease of cardiac power was brought about at the same time as the contraction of the vessels. The evidence of a decrease of cardiac power is wanting. On the contrary, the heart seems to be stimulated to greater exertion, and if it cannot keep up the pressure sudden death from heart failure may take place. A fall of blood pressure in the carotid may be explained on the assumption that there is an intense general contraction of the systemic arteries and that the cardiac force is fully maintained. During the state of shock there is an increased flow of blood to the internal and warmer parts, and if the patient dies the circulation continues efficient in the central longer than in the superficial vascular areas. It is possible that the portal system and the central areas generally relax at the same time that the superficial vessels contract, but there does not seem to be any evidence that the arterioles relax anywhere in the condition of shock. The belief that the phenomenon of shock is due to a contraction of the arteries was arrived at by noting that evidence of anything like a dilatation of the vessels generally or in exposed parts of the splanchnic area alone is usually wanting during life, even in conditions of the most severe shock produced by abdominal operations. Moreover it is also noted that a state of profound shock checks hemorrhage of small intra-abdominal vessels just as it interferes with the bleeding of superficial wounds. In both cases the arrest of hemorrhage favors the view that the vessels are contracted and not dilated. On the other hand, larger vessels in the center of the body bleed very freely when divided as if the pressure within them was great in proportion to their size. However, a comparison of the states of the radial artery, the carotid artery and the heart lends the most conclusive evidence to this view. In cases of unmistakable shock the heart action is persistently slow and forcible, though it may have ceased to produce an impulse in the radial artery. This condition seems to indicate an increased opposition to the flow of blood produced by an intense contraction of the arteries, those as large as the radial being reduced to a very small size. If the patient dies the heart action is always hastened toward the end, but it is, as a rule, the overworked heart that hurries. Another symptom of importance as evidence of the condition of the vessels is that partial anuria always occurs in shock and complete anuria is not uncommon. A better explanation of this than that afforded by lowered arterial tension is that the condition is due to contraction of the arteries and to consequent lowering of the blood pressure in the glomeruli, accompanied by the rise of blood pressure in the central vessels. The blood in a condition of shock has a higher specific gravity, explained by the fact that the more fluid elements are expressed into the lymphatic system. The treatment of the condition must be directed to preventing the ill effects of local irritation, to relaxing the vessels as soon as possible, and to keeping up the blood pressure in the superficial vessels until such time as a psychological relaxation takes place. With a view to preventing shock and also to relaxing the vessels when shock occurs warmth is of the first importance. Nitroglycerin, alcohol and ether tend to dilate the vessels and are therefore useful. Friction of the surface and the application of rubefacients are of great value. In order to keep up the pressure in the vessels the avoidance of hemorrhage by every possible means is essential. The

injection of saline fluids may afford much assistance, but the effect is temporary and of no use, except to gain time for the physiological relaxation to occur. Pressure on the abdomen, bandaging the limbs, bracing up the internal vessels by adrenalin, hemisine, ergot, strychnine, all tend to force the blood to the superficial areas, and therefore are beneficial for a time, and they also may prolong life until the arterioles are induced to relax; but these measures must increase the work of the heart to an enormous extent and therefore may directly contribute to the production of death from heart failure.

The Function of the Hypophysis.—Many and varied have been the opinions as to the use of this small organ, according to G. GUERRINI (*Archives Ital. de Biol.*, May 10, 1905). These opinions hold that the hypophysis is a useless, atrophied structure; that it has an important relation to the blood and circulation; that it is concerned with the general nutrition of the body, more particularly that of the nervous system; that it takes an important part in the biochemical processes; and many opinions have been advanced as to the mutual relationship of the hypophysis and akromegaly. The author pursued a new method in investigating this organ; he studied the normal type of its cells, and the histological changes that occur during its functional activity, and also noted the effects of various stimuli. The results of these histological studies are as follows: In the hypophysis there is only one type of cell. The so-called chromatophilic and chromatophobic cells represent different stages of activity of the same thing. The colloid substance is a product of secretion and not of degeneration. The cells elaborate two types of secretion, one granular and the other consisting of plasmosomes. The latter have a tendency to aggregate in a homogeneous mass, constituting the colloid substance. In gravid females there is a slight increase of secretory phenomena, from the very beginning until the end of pregnancy, or a little after. In healthy nursing animals there is no change in hypophyseal secretion. In newborn animals the activity of the gland is relatively less than in adults. In adult animals in which marked variations in the material exchanges are made to occur, no effect on the secretory activity of the hypophysis is observed. During the first third of a period of fasting, lasting until death, there is a light augmentation of secretion. In adversely affecting the development of the animal, no change in the secretion of the hypophysis is brought about. Injections of a fresh extract of the hypophysis or of its nucleoproteid, or of extracts of the thyroid, or of solutions of thyroïdin, stimulate the secretory activity of the hypophysis. Injection of pilocarpine causes a marked increase of the secretion, which becomes more watery. Another series of experiments dealt with the possible manner in which the hypophysis reacts to an intoxication of the organism, as with diphtheria toxin. An acute intoxication causes at first an increase and then a diminution of the secretory phenomena; a chronic intoxication causes a persistent and progressive increase in the secretion. The injection of the serum of animals that have been intoxicated causes an abundant increase of secretion. The general conclusions are: The hypophysis is not a rudimentary organ. It elaborates a secretion of two types. The secretion has no effect upon the trophism of the body. It has a generic antitoxic action.

The Clinical Significance of the Sensation of Vibrations.—In an investigation of the vibratory sensation, W. STERLING (*Deut. Ztsch. f. Nervenheilk.*, July 19, 1905) does not agree with the opinion of Rydel and Seiffer that in *tabes dorsalis* this sensation is affected

before the other sensations. He finds, however, that in diseases resulting from compression of the cord, the sensation of vibration is affected before all the others, and the degree of disturbance in the former exceeds that in the latter. This result must be confirmed by more extensive clinical observations before it can be of any diagnostic value.

Chemical Reflexes of the Alimentary Tract.—E. H. STARLING, pursuing this subject further (*Lancet*, Aug. 19, 1905), says it is not until the food arrives at the stomach that any use is made by the organism of the more primitive chemical methods of adjusting the secretion of the digestive juices to the presence of food at various sections of the canal. A secretin in the mouth has not been found, and this part of the tract is so closely associated with volition that its complete subordination to the central nervous system is to be expected. In the stomach, however, research has pointed to the possibility of some chemical mechanism being involved in the secretion of gastric juice. The primary gastric secretion is known to be of nervous origin, but after food has remained in the stomach for about three hours there is a second rise in secretion, and Pawlow has shown that this occurs when all nervous supply has been cut off. From observations it seems that absorption in the stomach takes place only at the pyloric end, and if a secretin exists it would naturally be expected that it would be formed in the pyloric cells under the influence of the food or acid passing from the fundus. Eddins experimented along such lines and obtained a substance which, when injected into dogs, caused secretion of gastric juice. This body evidently belongs to the same class as pancreatic secretin. As has been shown, pancreatic secretin, formed by acid chyme passing over the mucous membrane of the duodenum, stimulates the flow of pancreatic juice. The ferments of this juice are dependent for their full digestive activity upon other juices poured into the intestine at the same time; namely, bile and succus entericus. The fat-splitting and starch-splitting ferments occur preformed, but the activity of both of these is doubled or trebled if bile is present. It is essential, then, that bile be secreted at the same time as and in proportion to the flow of pancreatic juice. This has been shown to occur when secretion is injected intravenously. The proteolytic ferment, trypsin, does not occur preformed, but as a proferment, trypsinogen. In the presence of succus entericus, however, the pancreatic juice develops a proteolytic power more marked than any other known. This is due to the presence of a body which acts upon trypsinogen as a ferment—enterokinase. Lower down in the gut a secretion of alkaline juice is still of importance, in consequence of its content in sodium carbonate for neutralizing organic acids, erepsin for breaking down proteid, and the starch ferments invertase, maltase and lactase. It is seen then that from the entry of food into the stomach until its passage through the ileo-cecal valve there is a continuous chain of chemical reflexes which successively call forth to activity the digestive apparatus in the immediately following section.

PATHOLOGY AND BACTERIOLOGY.

The Production and Inhibition of Glycosuria by Means of Saline Injections.—Of eminent importance from the viewpoint of the pathology and therapeutics of diabetes are the experiments performed by M. H. FISCHER (*Pflüger's Archiv*, July 19, 1905).

The injection for 15 minutes of 75-100 c.c. of a $\frac{1}{2}$ molecular NaCl, NaBr, NaI, or NaCO₃ solution into the veins of the rabbit produces a polyuria and a glycosuria, the polyuria being 10 to 15 minutes after the beginning of the injection, and continues as long as the injection is persisted in. The glycosuria begins two hours after the beginning of the injection and lasts for 6 to 8 hours. At first, the quantity of sugar excreted is small, but it rapidly mounts to a maximum, and then descends gradually to zero. At the maximum the percentage of sugar is 40 per cent. After the glycosuria has ceased, the renewal of the injection of the salt solution produces no further excretion of sugar, although the polyuria continues. The fact that the percentage of sugar excreted is small does not give any idea of the extent of the diabetes, for it must be borne in mind that the amount of urine excreted is ten to twenty times as great as the normal. The amount of sugar excreted is really 8 per cent. of the normal amount of urine. The intravenous injection of a less than $\frac{1}{2}$ molecular solution of common salt produces a polyuria, but no excretion or only traces of sugar, and if it produces traces of sugar these appear later than when a $\frac{1}{2}$ molecular salt solution is injected. A still higher concentration than the latter produces an earlier glycosuria, the earliness of which is proportional to the concentration of the salt solution. The glycosuria produced by the injection of the above solution may be diminished or entirely inhibited by the simultaneous injection of CaCl₂ (975 c.c. $\frac{1}{2}$ mol. NaCl + 25 c.c. $\frac{3}{8}$ mol. CaCl₂). The rabbits vary with respect to the ease with which glycosuria may be initiated. There is a certain latent time before the specific effect of the various salts is made manifest. A number of experiments in which it was sought to determine the localization of the action of the concentrated salt solutions, indicated that the point of action is the medulla oblongata. The diabetes, therefore, is the result of the stimulation of the diabetes centers. By injecting the salt solution in the neighborhood of the medulla it is possible to produce the glycosuria by using only a few cubic centimeters of the concentrated solution. This method permits the use of certain salts whose use in the other experiments had to be avoided on account of their toxic action, in large amounts, upon the heart. These salts are LiCl, KCl, SrCl₂. Of no effect is NH₄Cl, and CaCl₂ and MgCl₂ always produce death. The effect of the various salts on the medulla is not an osmotic one, but is of a chemical or physico-chemical nature, for the injection of glycerin, urea or ethylalcohol solutions of the same osmotic concentrations, and in the same amounts as, or larger than, those of the effective salt solutions, produces no glycosuria. The percentage of sugar in the urine does not run proportional to the amount of water, but just the opposite. Both sugar and water vary independently of each other. It is possible to produce a severe glycosuria without any change in the amount of urine excreted. These facts contradict the theories of various authors that the cause of the glycosuria following the injection of saline diuretics is to be sought in the increased urinary secretions. The glycosuria is often accompanied by an albuminuria.

Spirochæta in the Blood.—At last the supposed specific germ of syphilis has been found in the circulating blood, and little doubt now remains that the cause of syphilis has been discovered, say C. T. NEOGGERATH and R. STAHELIN (*Münch. med. Woch.*, Aug. 1, 1905) who collected 1 c.c. of blood from the lobule of the ear, mixed it with ten times the amount of one-third per cent. acetic acid, and

then examined the sediment obtained after centrifuging. In three cases of undoubted secondary syphilis typical *Spirochæta pallida* were present. No similar bodies were seen in the blood of other conditions, but in one case, of advanced phthisis streptococci were found.

Typhoid Bacilli in the Gall-Bladder.—It is a significant fact that many individuals who have come into contact with patients suffering from typhoid fever but are not themselves sick, harbor virulent typhoid germs in their system, and are thus a menace to their surroundings. The great importance of the gall-bladder as a store-house for germs of the typhoid group is pointed out by J. FORSTER (*Münch. med. Woch.*, Aug. 1, 1905). The bile was found altered in all cases of typhoid that came to autopsy and typhoid bacilli were present even where the lower portions of the intestinal tract were free. It is logical to suppose that in many cases of typhoid the bacilli in the feces are really derived from the gall-bladder. When typhoid bacilli were injected directly into the blood of rabbits the germs could be found in the bile after six weeks, at a time when they had already disappeared from the blood and urine. Examination of the upper duodenum was also positive but not of the lower intestines. Even where the bile was sterile cultures could be obtained if pieces of the wall of the gall-bladder were inoculated. The para-typhoid germs behaved in every way similar to the typhoid. The bacilli sometimes persist very long after the disease; thus in one case the gall-bladder was still infected twenty years later. There is very little that can be done since both bile and intestinal contents do not admit of sterilization during life. It is best to make repeated bacteriological stool examinations in suspicious cases, and to operate whenever a catarrh or stone-formation seems probable.

Permeability of the Intestinal Walls.—Many experiments on new-born guinea-pigs have convinced A. UFFENHEIMER (*Münch. med. Woch.*, Aug. 8, 1905) that the intestinal walls are not permeable for bacteria, with the sole exception of tubercle bacilli. Even if small amounts of the latter are added but once to the food a tuberculosis will develop, just like in older animals. The infection generally takes place from the mouth and the vermiform appendix. The bacilli will travel through the walls without causing any loss of continuity, and eventually reach the lymphatic system. On inoculating other animals with the blood and lymph-nodes of these guinea-pigs, non-tuberculous nodules developed, which may be an evidence of immunization. Foreign proteids were not absorbed by the intestinal walls, yet slight amounts of diphtheria and tetanus antitoxin passed through in young, but not in older animals. In rabbits the intestinal walls were found much more permeable toward both bacteria and proteids.

Iron Pigment in the Thyroid Gland.—G. Lovell GULLAND and ALEXANDER GOODALL described the presence (*Lancet*, Aug. 19, 1905) of pigment giving the free iron reaction in the thyroid. The gland tissue was fixed in sublimated formalin and sections were stained with eosin and methylene blue to show the general structure. To demonstrate iron, sections were placed in a mixture of potassium ferrocyanide and hydrochloric acid and afterward counterstained with carmalum. Sections of thyroid gland taken from patients suffering from pernicious anemia, secondary anemia, medullary leucocythemia and lymphatic

leucemia, as well as from the glands of animals utilized experimentally in phenylhydrazin hematology showed the presence of free iron pigment. Examination of a large number of thyroid from all the common laboratory animals in normal condition was negative. The pigment is most commonly found in connective tissue cells between the vesicles. It is also present in small scattered areas in the epithelium lining the vesicles, and may be found in the cells lying free among the colloid material. It is most abundant in the more cellular parts of the thyroid where the colloid vesicles are small.

Staining Reaction of Spirochæta.—LEONARD S. DUDGEON recommends a method (*Lancet*, Aug. 9, 1905) of staining the spirochæta found in syphilitic lesions. Having made cover-slip preparations of the exudate, a few drops of a one per cent. solution of Leishman's powder in absolute methyl alcohol, just sufficient to completely cover the film, is poured on and allowed to fix and to stain the specimen for thirty minutes. Then double the volume of distilled water as the stain is allowed to run on the cover-slip and thoroughly mix with the stain, the staining process being continued for five minutes more. The diluted stain is poured off and distilled water run on and allowed to remain for one minute. Surplus stain and any precipitate is now removed by squirting distilled water on to the film. Blot dry and mount in Canada balsam.

A Theory of Gout.—There seems to be return to older views on the subject of the dependence of gout upon functional derangement of the liver and kidneys in the theory advanced by H. KJONKA (*Zeitsch. f. Exp. Pathol. u. Therap.*, July 21, 1905). His researches point to two facts: (1) In gout there is a functional disturbance of the liver, and probably of other organs, consisting in a failure in the activity of the urea-forming ferment. (2) A disturbance of the uric acid excretion by means of the kidneys, probably only functional, and probably determined by the nature of the uric-acid bindings in the blood of the gouty individual. These disturbances may be congenital (hereditary gout), or they may be the result of vicious modes of life and diet, or may be the result of toxins (lead, alcohol).

The Resemblance Between "Plimmer's Bodies" of Malignant Growths and Certain Normal Constituents of Reproductive Cells of Animals.—The observations made last year by the investigators working under the auspices of the Cancer Research Commission, established the fact that certain cells, particularly in the periphery of new growth, betray peculiar forms of mitosis, which are characteristic of the proliferating germinal cells. These same investigators, J. B. FARMER, J. E. S. MOORE and C. E. WALKER (*Proc. Royal Society*, Aug. 3, 1905) have been able to further fortify the contention that cancer represents an atavistic phenomenon, a reversion to the habits of the cells during early embryonic life. Their recent studies were concerned with the nature of the so-called "Plimmer's Bodies," which have been characterized by their discoverers as parasites possibly causing the malignant formation. The authors found that these bodies, which appear like large vesicles in the cells, are really very much like, if not identical with, the clear vesicular bodies observed during a certain stage in the life history of the germinal cells.

Delayed Chloroform Poisoning.—The interesting condition of delayed chloroform poisoning is discussed (*Lancet*, Aug. 12, 1905) with a thorough nec-

ropsy report by E. W. S. CARMICHAEL and J. M. BEATTIE. The patient, a girl, aged three and three-quarter years, died forty-two hours after excision of the right elbow-joint. The duration of the anesthesia was thirty minutes, five drams of chloroform having been used. The symptoms were chiefly vomiting, restlessness and collapse. No gross pathological condition was demonstrated in any of the organs, save the liver, which was extremely fatty; the kidneys, which were swollen and pale, and the suprarenals, which were enlarged, firm and of a bright canary color. Histologically the cardiac muscle showed in places slight granulation, the capillaries in the alveolar wall of the lung were moderately dilated, and minute fat droplets were present in some of the cells; the liver cells were granular, swollen and markedly vacuolated and crowded with fat globules from the center to the periphery of the lobules. Fat was also seen in the cells lining the bile capillaries and in the endothelial lining of the blood capillaries. Aside from the fatty change, no other abnormality of the liver was found. As to the kidney, the cells in all the tubules, collecting as well as secreting, were swollen and granular, and in paraffin sections there was very distinct vacuolation. Only here and there a few of the collecting tubules showed no fat. In this case, contrary to the case described by Stiles and McDonald, there was fatty degeneration of the whole of the glandular cells of the suprarenal. The mesenteric glands were the only ones examined. In the lymph spaces of these there were numerous fatty cells. As regards the spleen, some of the smaller arteries showed swelling and hyaline degeneration in their middle coat, and there were a few fatty large mononuclear cells in the lymph spaces. The secreting cells of the stomach, both central and peripheral, were swollen, granular and vacuolated, but the nucleus stained perfectly throughout. Examination of the bone marrow showed a larger amount of fat cells than is usually found at this early age. No antemortem blood examination was made, but from observations upon the blood in the vessels a condition of leucopenia is surmised to have existed.

Treatment of Cancer by Thyroids Combined with X-Rays.—The origin of the first conception as to the usefulness of sheep thyroids in the treatment of cancer is uncertain. Perhaps it was a vague recollection that they were one of everything tried for that purpose. CHARLES AM ENDE (*Am. Jour. of Surgery*, Aug., 1905) makes a preliminary report on some cases that have been under his care and which have been treated with thyroids combined with X-rays. Out of six cases, three responded satisfactorily. Three cases that had failed under X-ray alone responded promptly on the addition of thyroid. One, a case of facial epithelioma, is completely cured and so far without a relapse. The second, a case of sarcoma, left considerably improved in October for his native city where X-rays alone continue to be administered. The third, a carcinoma of the breast, is apparently cured, but is still kept under observation. Satisfactory explanation for the mode of action of these thyroids cannot be offered. The reduction of swellings, not exactly tumors; the absence, if not prevention of metastases; and perhaps, too, the rapid cure of the fresh-forming breast tumor point to an effect upon the lymphatics. Another obscure point is, why after the failure of either singly, these thyroids or the X-ray, their combined use gave the above-related results. Arsenic administered simultaneously with these thyroids should be cautioned against.

PRESCRIPTION HINTS.

Treatment of Acute Conjunctivitis.—The conjunctivitis due, in general, to the bacilli of Weeks is contagious. At the outset of the inflammation, antiseptic lotions are indicated. The lotion Dr. Wuillomene employs is cyanine of mercury, 0.25 for 1,000 grms. of water. At the same time, and for eight to ten days, the following collyrium is instilled in the eye:

℞ Sulph. of zinc.....gr. v
Water.....drs. iiss

If in a few days there is no improvement, recourse may be had to—

℞ Protargol.....grs. xv to xxx
Water.....drs. iiss

or—

℞ Argrol.....grs. x to xv
Water.....drs. iiss

These solutions are not painful and give satisfactory results.

Where the conjunctivitis is purulent and due to the gonococci of blenorragia, a solution of nitrate of silver should be employed:

℞ Nitrate of silver.....grs. v
Water.....drs. iiss

followed immediately by chloride of sodium, grs. xxx; water, drs. iiss.

Treatment for Keratitis.—The same antiseptic lotion should be employed as for conjunctivitis, and the following ointment:

℞ Iodoform.....grs. v to x
Vaseline.....drs. iiss

or—

℞ Yellow oxide of mercury.....grs. i to v
Vaseline.....drs. iiss

Where the perikeratic injection is pronounced, a solution of atropine should be instilled into the eye.

Iritis.—If the inflammation of the iris is acute with intense pain, four or six leeches to the temple will give good relief.

The atropine solution should be used at an early date, and—

℞ Strong mercurial ointment.....drs. iiss
Ext. of belladonna.....grs. xv

rubbed over the eyebrow.

If the inflammation is very acute, the following solution might be ordered:

℞ Sulphate of atropine.....gr. j
Hydrochl. of cocaine.....grs. iv
Solution of adrenaline.....mxxx
Water (1-1,000).....drs. iiss

One drop in the eye every three hours.

Paracentesis of the anterior chamber may be indicated if the tension is great and the pain severe.

Glaucoma.—In acute or subacute glaucoma, iridectomy should be performed as quickly as possible, and from the outset of the attack four or five instillations of—

℞ Hydrochl. of pilocarpine.....grs. ij
Sulph. of eserine.....gr. 1/4
Solution of adrenaline (1-1,000).....dr. j
Water.....drs. j

should be made daily. Besides their curative action they give great relief.

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No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, Including postage in U. S. and Canada.

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LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, OCTOBER 14, 1905.

MEDICAL UNION ONCE MORE.

At the meeting of the New York State Medical Association, to be held in the Academy of Medicine here in New York City next week, there is to be a renewal, and it is hoped a final one, of the effort to bring about the union of the two medical organizations which at present divide the allegiance of the members of the medical profession in New York State. Both the medical organizations on different occasions have voted unanimously that union should be effectuated, and after having appointed committees for this purpose, have come to a rational basis on which fusion can take place without the sacrifice of dignity on either side, and to the betterment of the interests of the New York profession. It would indeed be unfortunate if union should be once more delayed. After the high hopes, that were raised last year as to the near approach of fusion, were dashed to the ground, it was felt that beyond doubt another year would surely see the consummation so devoutly wished.

It seems well to recall some of the notable accomplishments which are to the credit of the medical profession of the Empire State, when they were a united body. It must not be forgotten that to their initiative is due the passage of laws for the regulation of the practice of

medicine, better and more satisfactory than in almost any other State. New York was a pioneer in most of the ameliorations of conditions for the medical profession, and other States looked confidently and followed with assurance her example. It is to the energy of the Medical Society of the State of New York that we owe the Pharmacopœia, with all of the attendant train of benefits that followed its establishment. It is to New York and members of the then united profession in this State, that the medical profession of this country owes the American Medical Association and the consequent national union of physicians which has meant so much for the uplift of professional dignity as well as the wider spread of scientific knowledge. Even after disunion it is to New York that must be mainly ascribed the foundation of the Association of American Physicians, which has been of special significance in the introduction of scientific methods and the publication of scientific progress of importance to this country.

It is sad to think that the possibilities for the good of the medical profession which have always been so prominent in New York should, during the last quarter of a century, have been almost entirely lost for the benefit of the profession at large. There is no doubt that the National Association has missed much from the failure to have the benefit of the cooperation of many members of the New York State medical profession, during the last two decades of the nineteenth century. There is no doubt even that the gradual change of sentiment with regard to the ethical principles which must serve as a guide to the practitioner of medicine, within the Association itself, has come as the result of the stand taken by some of the New Yorkers, and which has been justified in its results.

It is possible that, even at this late day, there may arise within the New York State Medical Association a concerted action on the part of a few to prevent, if possible, or at least to hamper the preliminary details of union of the New York medical organizations. Certainly none of the really prominent members of the medical profession and none of those who can be said to have the best interests of the medical dignity at heart are engaged in any such movement. The profession of this State will not lightly forget nor easily forgive any attempt to prevent the union of the two organizations which such a preponderating majority of the medical profession of this State now earnestly desire. This

must not be forgotten by those who might, for the sake of the notoriety involved in such a procedure, attempt to prevent what is so surely for the best interests of the New York State medical profession.

Certainly no more propitious time than the present could possibly be selected for the union of the divided profession. Next year sees the centennial anniversary of the foundation of the County Societies, and of the passage of the law for the establishment of the Medical Society of the State of New York. No worthier feature of that celebration could possibly be thought of than the fusion of the profession into one medical organization that would at once begin to assert its old-time influence in all matters medical, State as well as national, and would undoubtedly prove the source of many and important blessings to the medical profession of the country. Let us not have paltry excuses for the continuance of opposition that is now without rational basis, and since we are in a country where the majority is supposed to rule, let all the members of the medical organizations gracefully submit to what is evidently the will of the majority for the re-establishment of a single thoroughly representative State medical organization in New York.

STATES' RIGHTS AND A NATIONAL QUARANTINE.

THE first guns that were fired in the struggle for a national quarantine law were strongly indicative of the feeling in the South and showed very clearly the lines along which the opposition would lie. As far as the yellow fever and the quarantine, however, are concerned, the whole subject was second only in importance to that of immigration. This has been clearly demonstrated by the editorials in Southern papers during the last few weeks; in fact from the time that the idea of the call for the meeting at Chattanooga was conceived.

This is natural from the Southern point of view, for, as one writer stated, the yellow fever is only a matter of a few weeks; the outbreaks are often several years apart, and though shot-gun quarantines are a disgrace to civilization, even their horror would pale before the condition that would ensue if a race war were precipitated by the introduction of alien labor. The negroes are, of course, present in the South in large numbers, and the question of race suprem-

acy is in some districts already a serious one. If to this problem were added the introduction of coolie labor, with the concomitant bad feeling that the competition would necessarily engender, a state of affairs they fear would ensue which to them would be worse than any epidemic of fever. Added to this, the time of the year is fast approaching when the fever will die a natural death, and the confidence of the Marine Hospital Service that the epidemic could be suppressed with the officers and material at hand, without the personal supervision of its highest executive officers, has had a most calming and beneficial effect. Of a certainty nothing could have been more deserving of praise than the management of this most difficult situation by Dr. White, and the movement to have him permanently stationed at New Orleans is only a just and deserved tribute to the success that he has attained.

What the future benefits of this particular meeting will be it is hard to say. Interstate legislation is always a difficult matter to inaugurate and control when the interests of the States differ, and in this case it has become painfully apparent that only the strong arm of the Federal law will suffice. But it is right here at the beginning of the controversy that the real difficulty assumes a positive shape and that the old slogan of "State rights" rends the air in a manner that is more than reminiscent of antebellum days. Thus Senator Morgan, of Alabama, in a letter to Governor Jenks, of that State, intimates that the success of the government operations in Louisiana has made a plea for Federal supremacy that is in conflict with many views of State sovereignty and well-settled opinions as to the wiser policy. He does not perhaps specifically claim that Congress *cannot* enact a national quarantine law that would take away the powers of the States, yet he does think that some other arrangement should be advocated by which a compromise could be effected.

Senator McEnery, of Louisiana, too, in a speech recently delivered at New Orleans, while he denounced the local quarantine as "irregular, cruel and brutal," and as leading to anarchy and unfriendliness between neighboring States, still believed that a national quarantine law could be framed that would guard the public health and at the same time conform with the sovereign rights of the States. "For," he said,

"citizens of the United States are citizens of every State, with the right to travel from one State into another without expatriation or naturalization. The Federal Government," he continued, "has the power to protect freight trains and passenger trains going from one State to another, but if there is infection on either train the people at stations along the route are not compelled to allow the passengers to get off and mingle with the citizens, or to receive the freight consigned to that locality. Here the peril appears and the State's authority springs into existence, but the people along the route have no right to detain the train or in any way impede its progress to its destination. Neither have they the right to prevent a passenger from going to his destination when it is necessary for him to go from one train to another. He has passed beyond State jurisdiction and is under the jurisdiction of the Federal Government."

Now, unfortunately, there is a clause in the Constitution of the United States which provides "that no State shall, without the consent of Congress, enter into any agreement or contract with another State," and in order to overcome this Senator Morgan suggests that the States interested shall enter such a compact, which, having been submitted to Congress and ratified, will then have all the force and effect of a constitutional ordinance.

It has also been pointed out, that as treaties with foreign powers enable Congress to legislate for the quarantine of cholera and the bubonic plague without the interference of the local police power, that similar treaties might be negotiated in order to guard against yellow fever. But the uncertain life and duration of these treaties would probably make this method of procedure less desirable than the compacts between States. For these agreements when once adopted cannot be repealed, unless especially so stated in the compact, without the consent of all the powers concerned, so that Senator Morgan's project at treaty making between the States, subject to ratification of Congress, apparently solves the problem of preserving States' rights while enforcing interstate quarantine.

For *States' rights* will be the lion in the path in all questions of a political nature in the South; it always has been and it will always be, as much now as "before the war."

SCIENTIFIC MEDICINE IN NEW YORK CITY.

IT has been the custom sometimes for some of those who have the privilege of being members of the medical profession, but not that of living and practising in New York City, to say that the metropolis is a rather sordid place anyhow, that the members of the profession as a rule care only for the money there is in it, and that scientific medicine is unfortunately only too often neglected or else at a very low ebb. Of course we appreciate the fact that most of this jealous tone of complaint is due to the fact that not all the medical profession of this country can live and practise in New York City, and that those who are outside of it must find some compensation for the good things they know they are missing. We would recommend to them the good old saying, that contentment is the feeling that things might be worse, and in the meantime we would suggest that in recent years at least New York City has become quite as distinctly a leader in original research in medical science as it has always been a pioneer in medical, social progress, and the power behind what is best in professional life.

As some evidence of the rejuvenescence of medical scientific interest in the city, attention may be called to the organization of the Society of Experimental Physiology and also of the Society of Experimental Biology and Medicine. Both of these organizations have given striking evidence of their vitality and of their capacity to do good work of the best possible kind in medical research and scientific investigation. Recently there has come the organization of the Harvey Society, a society for the diffusion of knowledge of the medical sciences whose program furnishes the best possible proof of how ambitious is its aim. Some of the best teachers and most original thinkers from this country and from Europe are to deliver lectures under its auspices this winter at the Academy of Medicine, which are sure to attract the widespread attention of the medical profession and furnish them with precious information.

It must not be forgotten that New York City has had some of the best landmarks of scientific medicine in the country even before these societies were organized. When Professor Waldeyer, of Berlin, was in this country he thought, and did not hesitate to say, that some of our institutions for research and investigation in medicine were even better equipped than any of those

that he had seen in Europe, and he confidently prophesied a time when European medical students would come over here to complete their education as American medical students have been accustomed to go to Europe in the past. Among the institutions for which Professor Waldeyer had the highest praise was the Laboratory of Professor Huntington at the College of Physicians and Surgeons. As the German professor's own department is that of anatomy, he may be considered to be in an excellent position to judge absolutely of what he speaks. The laboratories of the other New York medical schools deserve almost as high praise as this and some excellent work is being done of the highest permanent value, especially in the pathological departments.

The coming of the Rockefeller Institute to New York has made a new center for medical investigation and has brought to us some extremely suggestive teachers who are themselves investigators of a high order. With the institute there came also the *Journal of Experimental Medicine*, whose publication here will doubtless prove an inspiration to many an original investigator. Quite recently the announcement of the appearance of another distinctively scientific publication, to be called the *Journal of Biological Chemistry*, is another index of how New York is coming to her own in this matter of encouraging and accomplishing original scientific work of enduring value for the entire country.

We are proud to think and to say that the metropolis is well engaged at original work, that all excuse for the old stigma of pecuniality, to suggest a word, if it really ever had a serious existence, is now passing away. We hope sincerely that the rising generation of physicians, the young men, literally, will realize that the fulfillment of the hopes now so promising depends entirely on them. Science has rewards, better in the personal satisfaction and consciousness of good work well done, better even than can come from a lucrative practice. The only thing worth while is to be engaged at work that is successful and satisfying. Long ago the wise man said, "Blessed is the man who has found his work"—and this is never truer than when applied to the successful medical investigator whose work means a lessening of suffering and a material increase of happiness for all mankind.

ECHOES AND NEWS.

NEW YORK.

Cornell University.—The registration just closing in the Cornell University Medical College shows a decrease over the best of the previous years. The three advanced classes are somewhat larger than usual, but the first-year class, which hitherto has contained an average of about 130 students, this year has less than 120. Medicine at present does not seem as attractive a calling as business, although 85 per cent. of the Graduating Class last year obtained hospital positions, and the hospital graduate has undoubtedly a better chance of success than others.

New York Academy of Medicine.—The Section on Medicine will meet Tuesday evening, October 17, 1905, at 8.15 o'clock. The following interesting program will be presented: (1) Presentation of Cases and Specimens. (2) Clinical Reports: (a) Pneumonia followed by Pneumococcus Meningitis, with autopsy; (b) Primary Carcinoma of the Pancreas with Metastases in the Liver, Vertebral Column and Calvarium, by Warren Coleman, M.D.; (c) A Case for Diagnosis, by E. E. Smith, M.D. (3) Papers: (a) "Tachycardia," by John J. Morrissey, M.D.; (b) "Exploration of the Chest and Physical Signs in Beginning Pulmonary Tuberculosis," by Geo. Mannheimer, M.D. Discussion by Drs. H. F. Loomis, Egbert LeFevre, S. A. Brown and others is announced.

Dr. Darlington Asks for \$2,516,396.—During the consideration of the budget for 1906 at the recent meeting of the Board of Estimate and Apportionment in the City Hall, Controller Grout and Health Commissioner Darlington had a heated controversy over the estimates of the Board of Health. Dr. Darlington asked for \$2,516,396, practically double the allowance of the Health Board for this year. Nearly \$200,000 of this was asked for the purpose of making a closer examination of the children in public schools. Controller Grout and President Littleton, of the Borough of Brooklyn, brought out the fact that it was President Darlington's intention to examine practically every pupil in the city's schools, and they gave it as their opinion as lawyers that the Health Department had no right to force either children or adults to submit to medical examination or to invade homes, except where there was ground for belief of the existence of contagious disease.

Many Unsanitary Bakeries.—Commissioner Darlington, of the Board of Health, announced recently that his department, working in connection with a delegation of the Central Federated Union, had inspected forty-two bakeries in Manhattan, and that most of them were in an unsanitary condition. The Commissioner said he was making plans to have every bakery in the city inspected. When the bakers' strike was in progress in the East Side reports were circulated as to the condition of the shops. A delegation of the bakers visited the Commissioner, and he immediately started an investigation and detailed inspectors to examine the 42 shops that the strikers said were unsanitary. The inspectors recently reported that 22 of the shops needed immediate alterations. When the Commissioner heard the report, he ordered the necessary changes to be made at once. The strikers had reported that many of the bakers had consumption, but the inspectors found no cases of the disease in any of the 42 shops.

PHILADELPHIA.

Bequest.—The Orphans Court, in adjudicating the estate of Cornelia Thompson, awarded \$10,000 to the Presbyterian and \$5,000 to the Children's hospitals.

To Do Missionary Work.—Since completing his internship at the University of Pennsylvania Hospital, Dr. Joseph McCrachen, formerly a star foot-ball player, has decided to go to China as a medical missionary. While at college he was one of the foremost and earnest workers of the Young Men's Christian Association.

Cornerstone of a New Hospital Laid.—October 7 witnessed the laying of the cornerstone of the new Hahnemann Hospital at Scranton, Pa. The institution when completed is estimated to cost \$82,000, and when the additional wings are finished the cost will approximate \$150,000. Deputy Attorney-General Fleitz was the principal speaker.

Tuberculosis Discussed.—Last Thursday, October 12, the Committee on Tuberculosis of the Civic Betterment Association held a meeting in the rooms of the Civic Club, 1615 Walnut Street, and listened to an address made by Dr. W. B. Stanton, of the Henry Phipps Institute, on "The Present Situation in the Crusade Against Tuberculosis in Philadelphia." Plans for an active campaign were discussed.

Received a French Decoration.—Dr. E. C. Kirk, Dean of the Dental Department of the University of Pennsylvania, has been awarded the decoration of "Officer d'Academie" by the French Government. The decoration was forwarded to Dr. Charles Gordon, honorary president of the Federation Dentaire Internationale, of which Dr. Kirk is Secretary-General, and consists of a violet ribbon and a silver wreath. Dr. Kirk has been editor of the *Dental Cosmos* since 1901, and is the author of many works on dentistry.

Hospital Officers Elected.—The meeting for the reorganization of the Board of Directors of the State Hospital for the Insane, at Norristown, held October 6, was marked by the election of officers. Dr. Joseph Thomas, of Quakertown, was elected president; J. M. Hackett, of Easton, secretary; Frank L. Smith, of Norristown, treasurer. Dr. Julia Hardin, of Philadelphia, was elected assistant resident physician of the female department—a position just created. Miss S. Catherman was made supervisor of the female department. Last year the expenses of the institution amounted to \$434,242, an increase of \$16,875 over the preceding year, but there was an increase of 105 patients to the hospital, there being in all 2,380 on the rolls now.

Lecture on Teeth.—Last week the students of the University of Pennsylvania listened to a lecture delivered by Prof. Willoughby D. Miller, of the University of Berlin, upon the subject of "The Researches Relating to the Pathology of the Teeth." He gave a brief report of the work done by him in this line through experiment. The form of disease which he has most often seen is characterized by the wasting and the loss of the hard structure of the teeth; this he regards as an evidence of caries of the teeth. At the opening of the fiftieth year of the Pennsylvania Dental College, Eleventh and Clinton streets, Dr. George Warren delivered the address. The indications are that the enrolment this year is the largest in the history of the institution.

School House Unsanitary.—In last week's issue of the *MEDICAL NEWS* attention was directed to the condition of the Station House at Haddington; inter-

est is now directed to the condition of a school not far from the property referred to. The School Board of the Thirty-fifth Ward listened and were deeply impressed with the declaration made by Chairman Charles Hessonbruch, of the Warren School. He told the Board that the cellar of this school is filled with water; that the odor about the building was nauseating, and that nineteen windows are minus panes. If the Board did not attend to the matter at once he is inclined to hold them responsible should any typhoid fever develop among the pupils. The School Board promised to clean the building and try to put it in a sanitary condition.

Meeting of the American Philosophical Society.—At this meeting, which was held October 6, Dr. George A. Piersol, of the University of Pennsylvania, delivered an address on the "Problems in Human Anatomy." He called attention to the fact that the beneficence of General Wistar in establishing an institution of research will be of the greatest value to medicine and surgery. At the same meeting Dr. John MacFarland delivered an address on "New Species of *Drosophila* from the Gulf States." Samuel Dickson was nominated to succeed General Wistar on the Board of Councillors and Prof. Henry F. Osborn, of New York, was also nominated as Councillor to succeed Henry Baird, who resigned because of the action of the society in accepting an appropriation from the last legislature for the Franklin bicentenary celebration.

Meeting of the Section of Medicine of the College of Physicians.—This society held its regular meeting October 9, at the College of Physicians. Dr. Joseph Sailer presented one patient with Hodgkin's disease and another with obliterative pericarditis. Dr. James Wilson read a paper entitled "Some Observations on the Diagnosis of Acute Pancreatitis." This paper was discussed by Drs. Edsall and Eshner. The next paper was read by Dr. Alfred Stengel on "A Case of the Stokes-Adams Syndrome." Drs. Hare, Francine, Riesman, Scott and Robinson took part in the discussion. Dr. Howard Fussell read a paper on "The Position and Size of the Heart in Advanced Cases of Mitral Stenosis." It was discussed by Drs. Hare and Robinson. Dr. J. Dutton Steele read a paper on the "Clinical Examination of the Feces." The last paper was read by Dr. Joseph Sailer, on "Tuberculosis of the Liver."

Citizens Discuss the Conditions of the Water at Nanticoke.—Recently the citizens of Nanticoke, where typhoid fever is epidemic, held a meeting first to discuss means of aiding the authorities in combating the disease and second to serve notice to the Nanticoke Water Company that filtered water must be supplied without additional expense to the people. Dr. F. C. Johnson, of the Department of Health, has been able to isolate a case of typhoid fever which occurred along a stream leading to the watershed from which Nanticoke draws its water and in which case he found that no disinfectant had been used; this case may be responsible for the wide spread of the enteric fever. He lays stress upon the gross neglect of the patients in regard to diet; those suffering with the disease believe they must eat heartily. Other people wilfully neglect to boil their drinking water. Up to October 4, there were 334 cases and 28 deaths.

Hospital Needs More Room.—Plans are on foot to enlarge the American Hospital for Diseases of the Stomach, which has been established by the philanthropic citizens at Eighteenth and Wallace streets.

It is the intention to enlarge the place, so as to afford more beds to accommodate suffering people and to establish a laboratory where the abdominal diseases can be studied. The following are managers of the institution: Clayton McMichael, G. Heide Norris, Henry R. Edmunds, Barclay H. Warburton, Henry A. Fry, The Rev. Herman L. Duhring, The Hon. William N. Ashman, Charles C. Newton, Dr. James McAlister, William R. Verner, Samuel H. Cramp and J. P. Brinton. William R. Verner is treasurer. The medical staff consists of the following physicians: Dr. John B. Deaver, Dr. D. D. Stewart, Dr. Lewis Brinton, Dr. John B. Shober, Dr. Sherbourne W. Dougherty, Dr. James Thornton and Dr. Ludwig Loeb. The present hospital accommodates thirty patients; possesses a diet kitchen and dispensaries.

The Canstatters' Raised Funds for Charity.—As a consequence of the Canstatters' Volksfest the following hospitals will receive aid: German Hospital, \$400; St. Mary's Hospital, \$250; German Protestant Home for Aged, \$150; German Reformed Home for the Aged, \$150; Little Sisters of the Poor, \$150; St. Agnes's Hospital, \$150; Methodist Episcopal Hospital, \$150; Lutheran Orphan Home, \$150; Sanitarium at Red Bank, \$100; Children's Country Week Association, \$100; St. Vincent's Orphans' Home, Tacony, \$100; Jewish Hospital, \$100; Soldiers' Home for Old Couples, \$100; Ladies' Aid Society of German Hospital, \$100; Samaritan Inn, \$100; Homeopathic Children's Hospital \$100; Frankford Hospital, \$100; Union Home for Old Ladies, \$80; Old Ladies' Home, Wissinoming, \$50; Northern Day Nursery, \$50; Seamen's Friends' Society, \$50; Northern Dispensary, \$50; Germantown Hospital, \$50; Samaritan Hospital, \$50; Northern Home for Friendless Children, \$50; Homeopathic Woman's Hospital, \$50; West Philadelphia Hospital, \$50; Nazarene Home, \$50; St. Timothy's Hospital, \$50; Presbyterian Hospital, \$50; Christian Home for Children, \$50.

CHICAGO.

Pharmacy Board Helpless.—Attorney-General Stead has rendered the opinion that under the present law the Board of Pharmacy cannot prosecute for adulteration of drugs and medicines.

Hospital for Illiopolis.—Dr. Louis Declermont, of Washington, D. C., has secured an option on 640 acres of land at Illiopolis. On this land the United States Government contemplates building a \$400,000 hospital for the army and navy. It will be for the treatment of bowel and stomach disorders. The capacity is to be 3,000 patients. The Illiopolis authorities must furnish lighting facilities and water supply.

Graduation Exercises at Michael Reese Training School.—This training school for nurses held its annual exercises October 5, in the Standard Club Hall. There were twelve members in the class. Dr. D. N. Eisendrath, of the medical staff, spoke to the nurses on the importance of securing a State Board license to nurses, that their profession may be raised to a higher plane. Mr. Herman F. Hahn, President of the Hospital, delivered an address.

City Health Force to Be Increased.—An additional appropriation of \$8,500 for the employment of more men in the City Health Department was recently voted by the Council Finance Committee. Health Commissioner Whalen informed the committee that "the public is complaining bitterly because of our inability to remedy conditions." The appropriation will be used for the following employees: One stenographer, six

plumbing inspectors, two clerks and six meat and food inspectors.

Yellow Fever.—A yellow fever refugee from Natchez, Miss., died in this city on October 4 from yellow fever. He came to Chicago on September 27, and on his way North was taken sick. Dr. Heman Spalding, chief medical inspector of the City Department of Health, said that there is absolutely no danger of infection in this climate, as the only means of infection, the Southern mosquito, cannot exist here. But to be doubly sure, the room in which this patient died was carefully disinfected.

New Building for Chicago Polyclinic.—The Chicago Polyclinic is making preparations to erect a new hospital at the southeast corner of Oak Street and La Salle Avenue. Through the President, Dr. Ferdinand Henrotin, the institution has obtained a loan of \$300,000 in the form of a bond issue. The Northern Trust Company is trustee for the loan, which is secured by the site of the new hospital and the property on Chicago Avenue, which is the site of the present hospital buildings. The new structure is to be six stories in height, and will be up to date in all departments.

City Meat Inspection.—Former Chief Government Meat Inspector Orrin E. Dyson has given his views as to the proper field for the city examiners. They should confine their activities to South Water Street, he said, and certain shops which handle meat not killed at the stockyards. Dr. Tyson said the city's inspectors do not add thoroughness to the work at the stockyards, because, being only six in number, it is impossible for them to be on hand to make proper examination. The competency of the city inspectors was also questioned, it being asserted that they lacked the necessary training.

New Maternity Hospital.—It is a source of satisfaction and congratulation to Chicagoans that the splendid work which the Chicago Lying-In Hospital and its associated dispensaries have been doing quietly and unobtrusively among the poor women and children in the west and northwest sections of the city is to be broadened in its scope. Land has been secured on the South Side, and a maternity hospital, thoroughly modern and perfectly equipped, is to be erected at once. The plans are already under way. The men's board of the Lying-In Hospital has pledged itself for the necessary money, and in order that it may be left free to attend to this the woman's board has agreed to raise \$8,000 to complete the funds for the running expenses of the present hospital for the current year. This will be done by public subscription. Regarding this new hospital, the *Chicago Daily Tribune*, October 7, editorially remarks that "Chicago likes to feel that it keeps up with or is a little ahead of other cities in matters of philanthropy. It soon will be able to point with pride to a long-needed and most valuable addition to its charitable centers—its new maternity hospital."

American Association of Railway Surgeons.—The second annual meeting of this association was held in Chicago October 4, 5 and 6, under the presidency of Dr. John E. Owens, Chicago. The association has three kinds of membership, permanent members, delegates and associate members. Although American in name, the association is cosmopolitan, and has members from Canada and Mexico. Forty papers were read, most of them being freely discussed. One session was taken up in discussing the care of fractures; conservative treatment of compound fractures; wiring as a means of securing the best results in compound fractures of the long bones; direct fixation in fractures; fractures of the vertebral column involving the cord and its treatment; fractures of the spine; Colles frac-

tures; fractures of the patella and fractures of the leg. An interesting feature of the meeting was a lantern slide exhibit of anopheles and stegomyia mosquitoes, with remarks on how freight and passengers are handled from the quarantined city, New Orleans, by Dr. L. Sexton, of New Orleans. The papers presented at this meeting were of a higher order and more scientific than usual. The various subjects were treated by men with extensive and varied experience. Dr. John B. Murphy, of Chicago, gave an interesting and instructive talk on the relations of trauma to bone tuberculosis. The high character of the work done at this meeting augurs well for the future greatness and prosperity of the association. The following officers were elected for the ensuing year: President, Dr. Richard W. Corwin, Pueblo, Col.; Vice-Presidents, Dr. J. H. W. Meyer, La Porte, Ind.; Dr. S. L. McCurdy, Pittsburgh, Pa.; Dr. Bacon Saunders, Fort Worth, Texas; Secretary, Dr. H. B. Jennings, Council Bluffs, Iowa; Treasurer, Dr. T. B. Lacey, Council Bluffs, Iowa; Editor, Dr. Louis J. Mitchell, Chicago, Ill.; Members of the Executive Board, Dr. W. S. Hoy, Wellston, Ohio, and Dr. J. R. Hollowbush, Rock Island, Ill. The time and place of the next annual meeting were left to be decided by the Executive Board.

CANADA.

Opening of Toronto Medical Faculty.—The Medical Faculty of the University of Toronto opened for the session 1905-1906 on the evening of October 3, the opening address being delivered by Dr. Victor C. Vaughan, of the University of Michigan. The Dean, Dr. R. A. Reeve, in the course of a short address made the announcement that the new term attendance established a record for the institution, there being 146 at that time enrolled on the register in the first year. The total registration in the medical faculty was then 550.

Montreal Foundling Hospitals.—The Medical Health Officer of Montreal holds that if illegitimate and still-born infants were not numbered in the city's death rate the annual percentage of deaths in Montreal would make a much better showing. He states it is not the custom in many other cities to include such deaths, and that it is desirable that a change in the system be made in Montreal. The deaths occurring in 1904 in the foundling hospitals were 494. Throughout the city there were: Premature births, legitimate, 229; premature birth, illegitimate, 49; still-births, legitimate, 425; still-births, illegitimate, 54. This makes a grand total of 1,237.

Toronto General Hospital.—During the week ending October 7 a few gentlemen interested in the new General Hospital for Toronto met in the office of a well-known banker, and within the space of a few minutes over \$250,000 was subscribed for the new project. The Hon. Senator Cox gave \$100,000; Mr. Timothy Eaton gave \$50,000; Mr. J. W. Flavelle, the chairman of the Hospital Trust, \$25,000; Mr. E. R. Wood and Mr. E. B. Osler, M.P., each \$25,000; Mr. B. E. Walker, Mr. H. D. Warren and Mr. P. C. Larkin, another member of the Hospital Trust, each contributed \$10,000. The available fund now amounts to \$850,000, but the projectors will require \$400,000 or \$500,000 more. General subscriptions will be solicited in the course of the next few weeks.

Extending Medical Course in Quebec.—According to several men in Montreal, who are in touch with the trend of medical affairs in the Dominion of Canada, the medical faculties of the various universities will insist on a five-year course in the immediate future,

before granting the M.D. degree. At the recent meeting of the College of Physicians and Surgeons of the Province of Quebec a resolution was passed authorizing a petition to the legislature to extend the course of study to five years' work. The authorities at McGill University state that although the matter has been under discussion at various times during the past few years that nothing definite has yet been done, but that it is altogether likely that within the next two or three years the five-year course will be in vogue in that university.

Montreal Maternity Hospital.—A fine new Maternity Hospital has lately been completed in Montreal, and will be ready for occupation in a week. For the purpose of bidding good-bye to the old institution, Dr. J. Chalmers Cameron, the physician in charge of the institution, held an afternoon tea on October 6, when some four hundred friends of the institution were present. In the course of the entertainment Dr. Cameron took occasion to refer to the history of the institution in the past. The hospital was founded in 1848 for the purpose of giving instruction in the obstetric art to the students of the Medical Faculty of McGill; and one of the earliest by-laws of the institution provided that the professor of obstetrics at McGill should be the physician in charge of the hospital. The total number of cases for the past year numbered 400, 110 of these coming from outside Montreal. In the preceding year there were 321, two-thirds of whom were married women. Since the training school for nurses was opened in 1896 about eighty nurses from the city hospitals have taken their three months' course of training there.

GENERAL.

A Notable Birthday.—Professor Eberth, Director of the Pathological Institute in Halle and discoverer of the bacillus of typhoid fever, celebrated his seventieth birthday on September 21. He was born in Würzburg, and received his medical education there. In 1865 he was appointed Professor of Pathological Anatomy in Zürich, and was called to Halle in 1874.

Anti-Tuberculosis Serum.—Sections of the International Tuberculosis Congress in Paris on October 6 resumed the discussion of papers and received reports of experiments. A description by Prof. Marmorek, of the Pasteur Institute, of the successful results obtained by numerous distinguished European savants from the use of his new anti-tuberculosis serum attracted considerable attention.

Diphtheria Well in Hand.—The authorities of the Naval Academy at Annapolis announced on October 6 that there had been no new cases of diphtheria among the members of the fourth class for four days and that the situation is well in hand. Many of the patients are entirely well or are making satisfactory progress. There is no likelihood of any further extension of the leave of the midshipmen beyond October 14, the date now fixed for the opening.

Yellow Fever Situation in Panama.—The report of the yellow fever situation in Panama since September 15, which has just been received at the offices of the Isthmian Canal Commission, shows that there were but two cases of the disease during that period. One was an Italian non-employee and the other an American employee, who died. No cases have been reported since September 20. During the entire month of September there were nine cases, seven of which were among foreign non-employees.

Lunacy Grows among Negroes.—Dr. W. F. Drewery, superintendent of the Central State Hospital, at Petersburg, Va., has submitted his annual report,

which contains interesting statistics regarding the alarming increase of insanity among the negroes of the State. "Never before in the history of the care of the insane in this State," says the superintendent, "have so many negroes been adjudged insane. The figures show unmistakable evidence of increase in insanity and mental degeneracy in the negro race. It would take too long a chapter to attempt to explain all the causes to which the increase of insanity in the colored population may be due. The patients we get do not seem to owe their mental downfall to excessive brain work, but rather to physical conditions and degeneracy, to which their lax, indolent, unhygienic and immoral methods of living naturally lead. Heredity influences, too, are gradually asserting themselves as a not insignificant factor in producing additional physical and mental defects in the race. The number of patients sent to the hospital during the year was 170 more than the previous year, showing an increase of about 50 per cent. The number in the hospital was 1,449, or 115 greater than the year before. The smallest number under care at any one time was 1,101 and the largest, 1,305. The number present at the end of the year was 1,181, or 80 over the previous year."

The Tuberculosis Congress.—At the tuberculosis congress, on October 9, Prof. Grancher, one of the leading French authorities, declared that consumption was one of the most easily cured diseases if taken in time. It was a mistake, he said, to wait until the presence of the bacillus was established. Immediately a physician discovered a permanent abnormal sound localized at the top of the lung when the patient drew a breath he ought to diagnose the trouble as tuberculosis. Sounding was the best and simplest test. It was far superior to radioscopic examination, in which he had little confidence. Ambassador McCormick has received a telegram from Secretary of State Root suggesting that he inform the American delegates to the congress that it is hoped it will consider the United States a suitable place for its next meeting, and the President will be glad to receive its members. The question was to be submitted at the final sitting on October 7. The Paris correspondent of the *Times*, writing on October 5, says there is every reason to anticipate a cordial and unanimous acceptance of the invitation communicated by the American delegates to the bureau of the Tuberculosis Congress to hold the next congress in the United States, particularly in view of the fact that it is made in the name of President Roosevelt. That is certainly the feeling of the British and French delegates, who have the highest admiration for the President as a peacemaker as well as for the excellent example he has given the American people in the struggle against tuberculosis.

The Ant and Formic Acid.—Formic acid, as stated in *The Lancet* of September 23, has been successfully exhibited in the treatment of tremors, and has long been employed on the continent as a stimulant in cases of gout and paralysis. The acid was obtained originally from the *formica rubra*, or red ant, and a common method of administering it was at one time by means of the "ant-bath." This last was obtained by boiling crushed ants or whole ant-hills, to the steam of which the diseased limb was exposed. How far this treatment was based on reason or on signaturist tradition it is impossible to infer. Medieval or savage pharmacutists seem to have argued that because the ant is the strongest of insects and can carry weights some ten or twelve times as heavy as itself a medicine derived

from it must of necessity impart muscular force to those taking a dose of it. Arguing on these lines the French *Figaro* published a year or two ago a long and ingenious article in which no trace of *persiflage* was discoverable and where it was demonstrated that if human beings were only to dose themselves with sufficient quantities of formic acid they would soon resemble the ants in prodigious feats of strength and endurance. Two French medical men were reported to have experimented on themselves with the results in the way of ant-like prowess that fairly beggared description. An "elixir" sold in bottles was the "practical" outcome of these investigations. It is probably selling in France to-day. The writer in the *Figaro* was so carried away by his theme that he foretold the complete revolution of industry and all social relations in a world where whosoever desired might be ten times stronger than his neighbor. Work, of course, would become the merest bagatelle and vast longevity would follow in the train of reduced muscular output. It was an idea worthy of Mr. Wells. Certainly the ancient dictum "Go to the ant thou sluggard" has lost little of its old-time connotations.

Health of the Army.—The health of the army has shown a steady improvement during the fiscal year ended June 30, according to the annual report of Surgeon-General O'Reilly. During the fiscal year there were 406 deaths from all causes, or 6.75 a thousand. Compared with 8.64 for the previous year and 17.93 for the years 1898-1902 the showing is considered very good. The percentage of men constantly non-effective also showed a material decrease. Pneumonia was the greatest cause of death, the death rate per thousand being 0.65. Tuberculosis was second with 0.37, and typhoid fever next with 0.33. During the year there were 206 cases of gunshot wounds, 44 of which proved fatal. Twenty-one men were killed in action, 45 were drowned, 27 committed suicide, and 10 lost their lives through homicide. Among the native troops in the Philippines, 56 enlisted men were killed and 25 wounded. The unusual proportion of killed to wounded, there being fewer wounded than killed, is explained by the fact that 47 of the killed were victims of hand-to-hand fighting with edged weapons. The various diseases in the army are discussed at length. Regarding typhoid fever it is shown that Fort Leavenworth, with fifty-three cases, led all army posts and reservations. The outbreak of beriberi among the Philippines scouts at the St. Louis exposition resulted in fifty-nine cases, four of which were fatal. There was but one case of yellow fever reported, at Fort Brown, Texas. At Fort Stevens, Ga., there is a case of leprosy, the only one in the army. The Surgeon-General says that the result of operations on wounded men shows that the army has a corps of capable surgeons, there being but two deaths which could be attributed thereto. The Engineer Corps had the highest rate per thousand for disease, the cavalry next and the Ordnance Department the lowest. For death rate from disease the Signal Corps stood the highest.

The Negro in the North.—A recent issue of *Charities* is a special number, devoted entirely to a study of the negro in the cities of the North. Its purpose is to bring the facts relative to the condition of negroes in the cities before the public, and with the aid of Booker T. Washington, Dr. Dubois, of Atlanta University, and other leaders of the race, and of such agencies as Greenwich House in this city, it has been possible to gather a great mass of

material. Booker T. Washington believes that the place for the negro is in the South, and he tells why he thinks so. He writes: "I do not believe the masses of colored people are yet fitted to survive and prosper in the great Northern cities to which so many of them are crowding. The temptations are too great, and the competition with the foreign population, with which they here come in contact, is too fierce."

In describing the negroes' struggle for existence in Northern cities another writer says that the negroes' difficulties are accurately reflected in the high death rates, especially the frightful mortality of the negro child. Roughly, in proportion to their respective numbers, for one white child in 1900 six negroes died from diphtheria and croup. Other diseases of childhood kill from two to four times as many negroes as whites. That the great majority of negroes in Manhattan live in poverty is the conclusion of Miss Mary White Ovington, who has studied negro conditions in this city for a year and a half. She points out that in the districts the negroes are forced to live they see much that is base in the dominant race. Choosing at random fifty families living in the Tenderloin Miss Ovington found that 70 per cent. of the mothers were known to be moral by those charitable workers who for many years had been in close touch with them. These people, Miss Ovington says, live a life apart from the roughness and vileness around them, but close to their church and their children.

Charities pays considerable attention to the bringing of negro women from their homes in the South to the North, and the abuses that result. The Southern States, especially Virginia and Georgia, are honeycombed with employment agency sharps who use every sort of an inducement to get colored girls to leave their homes, promising good wages, easy work and good times. These dupes of the employment agency sign a contract agreeing to work one or two months for nothing after their arrival. They sign over their personal belongings to the employment agent, and when their little store of money is gone and no work is found for them they fall into evil life.

Typhoid Fever in New York.—In commenting on the recent conference of health officers in Albany, the *Times* says in part: Some statistics of startling interest respecting the prevalence of typhoid fever in New York were presented by Dr. Eugene Porter, of the State Department of Health. Of these the fact of greatest immediate importance is that since the beginning of 1905 sixty thousand persons residing in this State have been attacked by typhoid fever and that the deaths from this cause in New York City alone have exceeded five hundred. This means that in New York City the number of persons attacked by typhoid since the beginning of 1905 somewhat exceeds thirty thousand. Allowing for everything, it is scarcely probable that with modern methods of treatment and hospitals open to rich and poor alike, the local typhoid mortality exceeds 5 per cent. It should be much lower. Dr. Porter's explanation of the causes of this high mortality from a disease which experience has shown to be entirely controllable is undoubtedly correct. He shows that "for a series of years an increasing volume of sewage has been poured into our streams, until practically all are contaminated, and many of them are little better than open sewers." From these streams the water supplies of our cities and towns are drawn. Sewage is never wholly free from the deadly poison of typhoid. How-

ever great the volume of water into which this mischievous contagion is diluted, it multiplies rapidly, and only under exceptional conditions is it eliminated by natural causes. Filtration accomplishes much in the way of purification and has great value; but it does not make entirely safe water thus polluted, and the reform demanded by the conditions to which Dr. Porter calls attention is one which local communities cannot initiate. This fact seems to have made itself dimly apparent to the State sanitary authorities at Albany. It is probably never too late to begin a great and necessary reform; but the announcement that a beginning is to be made after the typhoid sickness rate has attained the proportions of some seven thousand cases a month in a population of probably less than eight millions suggests the pertinent inquiry: Why was it not begun long ago? The facts pointed out by Dr. Porter are not new discoveries. They have been known for at least half a century to every student of State medicine. Indeed, they are the commonplaces of elementary sanitary science. Why has our State Board of Health, if invested with the power to do what Dr. Porter promises, not done it this dozen years past? What its negligence has cost the State would exceed manifold the cost of the most comprehensive measures for the protection of the watercourses of the State.

The next step in the progress of civilization will be away from the present method of imitating in modern sanitary practice the example of Hercules in the cleansing of the Augean stables. When the fact is realized that for most of our communities nothing but dilute sewage is available as drinking water a great reform will be possible, and probably not until then.

OBITUARY.

Dr. JOSEPH B. JONES, who was prominent for many years as a physician and in political life in Brooklyn, died on October 9 at his home, 372 Carlton Avenue, Brooklyn. He was born in New York City in 1828, and was graduated from Columbia College Medical School. Dr. Jones had been connected with the Brooklyn City Dispensary since its organization. He was for two terms a Coroner of Kings County and had also held the office of Health Commissioner.

JOHN ARVID OUCHTERLONY died in Louisville, Ky., on October 9. He was born in Sweden in 1838, came to America in 1859, and in 1861 joined the United States army, serving nearly four years. He moved to Louisville in 1865, and has since resided here. In 1891 King Oscar of Sweden made him a Knight of the Polar Star, and in 1894 Pope Leo made him a Knight of the Order of St. Gregory. Dr. Ouchterlony was a member of the Kentucky State Board of Health, and later Health Officer for Louisville.

CORRESPONDENCE.

AN APPEAL.

To Our Fellow Members of the New York State Medical Association:

At the approaching annual meeting the opportunity will be presented for us to take definite and final action in consummation of the amalgamation agreement between the two State medical organizations. Our officers have arranged a method of procedure in accordance with the requirements of the law and the dictates of the courts. There is nothing now to prevent union except indifference on the part of members of the Association.

We therefore appeal to all members of the Association who have at heart the best interests of the medical

profession of our Empire State to attend the business meeting called for 10 o'clock, Tuesday, October 17, and come prepared to express their wishes, by ballot, in no uncertain way, in support of every act and resolution favoring the union between the two State medical bodies.

(Signed)

CHARLES G. STOCKTON, M.D.,
DE LANCEY ROCHESTER, M.D.,
ROBERT ABBE, M.D.,
W. GILMAN THOMPSON, M.D.,
REGINALD H. SAYRE, M.D.,
JOHN A. WYETH, M.D.,
FRANCIS J. QUINLAN, M.D.,
HERMAN J. BOLDT, M.D.,
A. J. MCCOSH, M.D.,
EDWARD G. JANEWAY, M.D.,
A. A. SMITH, M.D.,
JAMES P. TUTTLE, M.D.,
CHAS. STEDMAN BULL, M.D.,
D. BRYSON DELAVAN, M.D.,
W. M. POLK, M.D.,
JOSEPH D. BRYANT, M.D.,
JOHN F. ERDMANN, M.D.

NEW YORK, October 12, 1905.

SOCIETY PROCEEDINGS.

THE HARVEY SOCIETY.

THE first lecture delivered at the New York Academy of Medicine was by Professor Hans Meyer, of the University of Vienna, Saturday, October 7, at 8.30 P.M.

Professor Meyer took for the subject of his discourse the theory of narcosis, in which he has made extensive and fruitful original investigations. He said in brief that this peculiar effect upon the central nervous system, by which a number of drugs produce narcosis, is one of the most interesting in the whole realm of physiological chemistry. Unfortunately, an absolutely definite answer cannot be given to it as yet because we do not know enough about the institution of the body and its cells. The chemistry of protoplasm, in spite of all investigation, still remains a mystery.

Groups of Substances with Similar Effects.—Prof. Meyer said that a number of investigations had been made with the idea of showing that certain groups of drugs having parallel effects did so because of like chemical action. Years ago Brown and Fraser had shown that the alkaloids had corresponding effects because of certain correspondences in their composition. Whenever ammonia is present in an alkaloid it has a distant tendency to act like the American Indian arrow poison, known as curare, and this is evidently due to the chemical effect produced by the special combination, of which these substances are composed. Hofmeister had made a like investigation with regard to the neutral salts the most familiar of which are kitchen or common salt and Glauber's salts. He found that their community of action was due to the common possession of the power to take water out of the tissues.

Narcotics.—Professor Meyer said that the idea of many investigators had been to find some such common quality as was the case in these other groups among the narcotizing substances. There are, however, a large number of narcotics, all the esters and ethers, as well as the alcohols and ketones, have this special power. Chemically these

substances are often quite different from one another, yet they all have the effect of producing inhibition of the higher powers situated in the cerebrum, of quieting the sensorium, and finally, if continued too long, of acting on the medulla and so causing death. These substances have the same effect on the peripheral nerves when directly applied to them. They have the same effect even upon other forms of protoplasm. Plants may be set asleep by them, and even the sensitive plant may be made to lose its tendency to curl up when touched, which is sometimes spoken of as a reflex act, though not really such.

Explanations of Narcosis.—From the very first employment of narcotics or anesthetics it was realized that the main effect was upon the brain. Very soon after the introduction of ether an attempt was made to explain its action. The first investigators were in England, and they thought that they found a tendency for fat in the brain to be dissolved by the ether. If death took place from narcosis, or shortly after it, ether extracted less substances from the brain than it did from that of a normal individual, while it extracted more fat from the liver of the narcotized person than from that of the ordinary person. It was thought then that ether dissolved fat from the brain that this found its way into the circulation and was eliminated in the liver. The fact that all persons get over narcosis readily and completely without any after-effects seems to stamp this theory as false. No gross changes can have taken place in the brain when recovery is so complete and immediate. Yet it is curious that these first investigators seem to have hit upon a portion of the true explanation of narcosis. There was something right in their theory and their observations.

Other Explanations.—Other explanations were soon offered, some of them along the same line. Hermann found that ether dissolved the red blood corpuscles. These contain lecithin; hence he came to the idea that all lecithin solvents act as narcotics. It is true that all the methane narcotics have this property in varying degrees. For a time it was asserted that substances were narcotics in proportion to their power of dissolving fat. This was not true, however, in its entirety. It must not be forgotten that there are many substances in the body besides fat. Any fat dissolving material that enters the body is brought in contact with many forms of organic substances. Some of the compounds that dissolve fat have a great affinity for water, and as a large proportion of the human body is made up of water their dilution by this may weaken their fats dissolving power, and consequently their action upon the brain and their capacity to narcotize. This proved to be the crux of the law that would make fat solvency correspond with narcotic power.

Another Theory.—The distinguished Professor Richet, of Paris, as a result of these considerations with regard to the weakening power upon narcotics of water within the body suggested as a physiological rule that a narcotic is stronger as it is less soluble in water. This is as one-sided, however, as the preceding rule. The truth lies some place between the theories of German and French observers. The more fat a substance will dissolve, while at the same time it is less soluble in water, the more power has it as a narcotic. Accepting this as a working hypothesis, Professor Meyer undertook a series of experiments to determine the solvency coefficient of various narcotic substances as regards fats and

water. The materials taken for comparative purposes were olive oil and distilled water. In this way the coefficient of solvency could be obtained. Besides this an attempt was made experimentally to determine how much of a particular substance was necessary in order to bring about narcosis. For this purpose tadpoles were used and were placed in different solutions of the various substances until a solution was found just strong enough to maintain them in a narcotized condition. The tadpoles were placed directly in the solution.

Professor Meyer called attention to a table which brought out the fact that the higher the partition coefficient as regards solvency of fat and water in any particular substance the less concentration of its solution was needed to bring about and maintain narcosis. For instance, salicylamide with a partition coefficient of 22.0 needs a concentration of only 0.0008 (the standard molecular concentration being a gram to a liter) in order to maintain anesthesia. Trional comes next, and tetronal immediately follows it in the heights of its partition coefficient, and they, too, require very little concentration of solution to bring about narcosis. With some few slight exceptions the rule holds that as the partition coefficient grows less the amount of the substance needed to maintain narcosis becomes distinctly greater.

Effects of Temperature.—The partition coefficient differs somewhat at different temperatures. It can readily be understood that many substances when warm will dissolve more fat than when cold; not all substances, however, follow this rule. Some rise in fat solvency with the temperature, but some have directly the opposite quality. Six substances were carefully investigated with regard to this question of variation with temperature. All substances that increased in fat solvency with temperature had a correspondingly greater narcotizing power also at the higher temperature. On the contrary, substances that lost in fat solvency with a rising temperature lost also in anesthetic effect. Reduction of temperature, bringing about differences in fat solvency, either of increase or decrease, had a corresponding effect upon narcotic power. Narcotized animals could, by raising or lowering the temperature of the solutions in which they were kept, be made to wake or sleep according as variations of temperature changed the fat and water solvency; that is, changed the partition coefficient. This, of course, is a strong confirmation of the truth of the suggested law worked out from a different standpoint and with data from those from which it was originally obtained.

Physical Effect.—It seems evident that narcotism is produced as a physical effect. Certain it is that some substances of the paraffine series are narcotic, and yet it is not because of their chemical action, since only very strong chemicals, such as concentrated sulphuric acid, effect them; the theory, therefore, that makes the power of narcotics depend on solvency would seem to be correct by analogy at least, since this is more a physical than a chemical effect.

At one time Baumann introduced another theory to general attention. He was the first to make trional and sulphonal. He considered that when the sulphones are not broken up in bodies resembling these, no narcotic effect is produced. This is not true, however, though the demonstration of the lack of evidence for it is thus far deceiving.

Theory of Narcosis.—As the result of the principles that have been discussed this evening, it is evident that there are fats (lipoids) in the brain cells of the higher animals which are very important, at least as regards the operations of sensation. It is as if there were an emulsion containing lecithin or similar substances, the disturbance of which by the presence of a fat dissolving substance causes a break in the function of the cells. The solution of the fat, or at least its taking out of the compound in which it was before, disturbs the equilibrium of the cell, and its ordinary physiological function is completely suppressed for a time at least.

Lipoids.—These lipoids materials, as they have been called because of their fat containing quality, exist in every cell. They are bound up with the albumin and other components of the protoplasm. Every living cell contains them; even plant cells are not free from them. All cells that contain lecithin, no matter how low their origin, can be narcotized. Morphine seems to disturb some other substance within the cell, since its effect can be noticed for such a long time after it has been taken. It will be an interesting subject for investigation to discover just what the series of alkaloids related to morphine affect in producing their physiological action. Recently, here in New York, Dr. Meltzer has shown that certain of the magnesium salts produce narcotic effect. It is evident, however, that this narcotism is due to the action of these drugs upon some other substance than is the case either with the ordinary anesthetics or with morphine. All of these substances, however, break in some way the essential ring of material on which cell function depends and thus produce narcotism.

Practical Applications.—It is always the custom to look for the practical in a lecture of this kind. The question, however, what is the use, is not always the best test for scientific progress. There have been some very decided advantages derived from studies made along the lines I have suggested. The acid amide salts have been introduced as new materials for the production of sleep, and further advance along this line can be looked for. The partition coefficient and its results will be held in the further investigation of narcotizing substances.

Dr. Meyer then thanked the audience for its kind attention and was applauded very vigorously.

Dr. Jacobi said that he was proud to have lived to the time when there was no longer English and French and German medicine, but just medicine; hence, the New York Academy of Medicine was ready to welcome the Harvey Society and to congratulate it on its first successful effort. He then thanked Professor Meyer for having come such a long distance, though it is fortunate that the world grows ever smaller and the ocean ever less large.

PENNSYLVANIA STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, held at Scranton, Pa., September 26, 27 and 28, 1905.

SECOND DAY—SEPTEMBER 27TH—(Continued.)

(Continued from Page 715.)

Protective Inoculation Against Typhoid Fever.—Paper read by Dr. D. H. Bergey, of Philadelphia. After reviewing some of the work that has been done in this direction he stated the best method of protective inoculation is that of Pfeiffer and Colley. In this method the bacteria are grown on agar and then suspended in salt solution, after which the salt solution is heated to

kill the bacteria. The injections are begun in small doses and then increasing doses. The protective inoculation brings about a condition seen in convalescent typhoid fever patients. The local reaction should appear within twenty-four hours. With the systemic disturbances there is a rise in the temperature to from 0.5 to 3° F., headache, malaise, vomiting and herpes; occasionally albuminuria is present. The second injection is followed by milder symptoms. He mentioned the method of Wright for protective inoculation, but he believes that of Pfeiffer and Colley is superior.

Uterine Curettage, Its Indications and Contraindications; Its Technic and the Complications which May Attend and Follow the Procedure and Their Proper Treatment.—Paper read by Dr. E. E. Montgomery, of Philadelphia. In his opinion much depends upon the man using the curette. It should be used in chronic endometritis, in profuse uterine discharge, in protruding submucous polyps, in carcinoma for scraping to study under the microscope, dysmenorrhea, and retention of embryonal particles. The curette is contraindicated in acute endometritis, in intrauterine myoma and in malignant disease, except to obtain particles for microscopic study, and then it should be followed by the cautery. In some cases he prefers to use his finger, instead of the curette. If the cervical canal is not freely open, the dilators should be applied; to dilate the cervical canal he prefers the graduated metal bougies to the bar dilators, which instruments he regards as dangerous. While admitting that the uterus may be perforated with the graduated bougies, he holds that danger is minimized if the instruments are handled with care. Montgomery is inclined to use a sharp curette because the laceration of the organ is much less than with the blunt instrument, and it will remove more easily the parts desired. Perforation of a non-septic uterus should not be a source of great danger.

Chronic Rheumatism.—This paper was read by Dr. Charles F. Painter, of Boston. (See a subsequent issue of MEDICAL NEWS.)

Technic Employed in the Last One Hundred Laparotomies with the View of Restricting the Employment of Drainage.—Paper read by Dr. L. J. Hammond, of Philadelphia. He gave a detailed description of the technic employed in the operations. In cases in which there is a local area of suppuration he applied bichloride of mercury, 1 to 500, directly to the area by means of a probe wound with gauze. He is very emphatic in his view concerning drainage. He says this is not to be employed.

In opening the discussion on this paper, Dr. J. G. Clark, of Philadelphia, maintained that drainage should be avoided if possible. Dr. J. M. Baldy, of Philadelphia, takes exception to Dr. Hammond's use of bichloride; he insists that no chemical whatever should be placed in the abdominal cavity. Dr. Ernest Laplace, of Philadelphia, holds that in regard to drainage hard and fast rules cannot be laid down. Each case must be considered separate; occasionally it is absolutely necessary to drain, at other times it would be the height of folly; if in doubt, drain.

Management of Pus Cases in Abdominal Surgery.—Dr. Reed Burns, of Scranton, read this paper. He discussed the various lesions that may give rise to suppuration of the peritoneum. In the remarks made upon the treatment of the lesions, he stated that in all his cases of empyema of the gall-bladder he removed the organ; and that when dealing with a suppurating salpingitis he maintained that imme-

diately operation should be done. When he has pus free in the abdominal cavity he makes a median incision, flushes the cavity with salt solution or with sterile water at 115° F., and then removes the excess of the irrigating fluid. Of the twenty-seven cases where he found pus in the peritoneal cavity, twenty-four were consecutive to rupture of the appendix and one due to perforation of the stomach; of the twenty-seven, four died. Where the pus was localized, his mortality was two per cent.

THIRD DAY—SEPTEMBER 27TH.

Observations on Cancer of the Head and Neck; with an Analysis of 110 Operative Cases.—Dr. G. W. Crile, of Cleveland, O., read this paper. From an extended search of the literature, he concludes that cancer emboli are infrequent. In taking up his work he lays great stress upon the importance of complete operation. If this procedure is not done thoroughly, it stimulates the growth and shortens life. In doing the radical operation, he advocates the removal of the lymph nodes, *en bloc*, he avoids handling the carcinomatous tissue, and retracts on sound tissue and never on the diseased. In doing operation on the larynx for carcinoma he advises a preliminary tracheotomy. Tongue operations had better be done in two stages. In such procedures Dr. Crile introduces a rubber tube through each nostril to a point opposite the epiglottis and then packs the throat with gauze to prevent the blood from running in the larynx, and to avoid inspiration pneumonia. By this apparatus he can get the etherizer out of the field of operation. He notes that it is well to cocaineize the pharynx before introducing the rubber tubes. Hemorrhage is best controlled by temporary ligation of either the external or the common carotid, but even with the external carotid ligated he has seen severe pulsating hemorrhage, which he believed came from the opposite side of the body. Permanent ligation of the common carotid is not looked upon favorably because of the brain softening which results. A partial upright position of the patient assists in controlling the hemorrhage. Prevention of hemorrhage and laceration of the tissue avoid to a certain extent collapse. When his wound is large the exposed parts are covered with warm compresses. Dr. Crile divides the cases upon which he operated into two groups. In the first series are those in which the lymph nodes were not removed, the carcinomatous tissue was handled; the results were unfavorable. In the second series there were four times as many cases cured as in the first series. Forty-six of the cases of the second series have not been operated upon for three and there is no recurrence. In this series the mortality was 10 per cent., but this includes some of the cases of the first group. He concludes that every case of carcinoma is curable at one time, and advises in every patient suffering with cancer of the head or neck, a radical operation.

Dr. R. H. M. Dawbarn, of New York, in the discussion, stated that in operations about the neck his incisions are so made that they will show very little. The first begins over the mastoid process, then passes along the border of the hair, then along the clavicle to the sternocleidomuscle. The second cut is made along the under margin of the lower jaw. He does not hesitate to cut the sternocleidomuscle. Death in these operations results from hemorrhage, or from shock, from inspiration pneumonia and from the long-continued operations. To

prevent hemorrhage he produces an anemia of the head and neck by cording the lower extremities for ten minutes and then transferring the cords to the upper extremities where they remain for ten minutes, when they are again transferred to the lower limbs. He does not fear gangrene because the shortest time in which this condition has been produced was one hour. When anemia is produced in the way indicated he holds that after complete anesthesia has been effected, very little, if any, ether is needed. After the operation he elevates the foot of the bed, and when the patient is able to swallow ice water without coughing he is allowed to sit up. Occasionally, he says, he does these operations in two stages, permitting several days to intervene. To stop hemorrhage he applies boiling water to the part by means of a gauze sponge. Sloughing, as result of this procedure, has not occurred in his practice.

A New Intestinal Bobbin.—This was exhibited by Dr. J. G. Clark, of Philadelphia. The instrument is composed of four pieces of metal. One piece is shaped like a rectangularly-grooved pulley, and the other three, when in position, form a similar pulley. To put the instrument in use, the pulleys are introduced into the lumen of the bowel, one in each end, then the intestine is tied over each half of the bobbin after which the bobbins are clamped together. The peritoneum is now sutured. When the bobbin sloughs out it falls into the lumen of the gut in pieces. He has carried out experiments with the instruments on dogs, and found that there is no puckering of the intestine.

Dr. W. L. Rodman, of Philadelphia, in the discussion, held that a mechanical device of any kind in the intestines is prone to give rise to intestinal narrowing. Dr. H. M. Dawbarn, of New York City, is of the opinion that the direct suture cannot be replaced by any mechanical device, and maintains that since the difference between the human and dog intestine is so great, experiments on the latter animals are of no significance. Dr. Reed Burns, of Scranton, inclines to the use of the continued suture, except in certain cases; then he uses the Murphy button.

Wandering Gall-Stones.—Paper read by Dr. W. L. Estes, of South Bethlehem. (See a subsequent issue of MEDICAL NEWS.)

Decompressive Operation in Inoperable Brain Tumors.—Dr. H. W. Cushing, of Baltimore, Md., read this paper. He stated that although a tumor may not be accessible, operation can be performed just the same with relief for the patient. The pain which causes these patients so much suffering is due to the pressure on the dura where the sensory nerves are situated. The so-called "optic neuritis" is really optic atrophy with a secondary round-cell infiltration incident to the stasis; the vomiting is due to intracranial pressure. He notes that nature may, by causing pressure atrophy of the bone, bring about relief to the patient. He has seen three such instances. In some of these cases the relief is obtained by separating the sutures, but such conditions occur only late in the disease. The surgeon, by removing a part of the cranium, can relieve the symptoms and prevent the vomiting and the choke disk, but the objection to these methods of treatment is that the protruding brain loses its function, and paralysis ensue if the cranial opening is made in an easily accessible part of the head. He suggested two areas where the protruding brain is protected by the overlying muscle. The first region mentioned

was beneath the temporal muscle. The incision in the skin is made over the attachment of the temporal muscle after which the muscle is splint and then the bone is opened, the dura excised after which the muscle is closed with sutures. This region is utilized when the tumor is above the tentorium; when the growth is below this structure the opening is made in the suboccipital region and protected with the muscles in this area.

Dr. R. H. M. Dawbarn, in the discussion, spoke of the use of celluloid plates and of making osteoplastic flaps, but allowing the bone to remain so that it will not unite and will give to the constantly increasing pressure.

Exhibition of a Clinical Case for Diagnosis.—Dr. Thomas W. Kay, of Scranton, brought the patient before the Society. Patient is seven years old, and the disease was first observed when the child was three years old. The eyes are extremely prominent and appear to be dropping out of the orbits. The inferior maxilla is absorbed, so that the chin is lost. After the jaw-bone disappeared, the right parietal began to waste, and then the left parietal, and finally the temporal bone. The circumference of the head horizontally is 53 cm. The child at one time passed 27 liters of urine, but now he passes 23 liters in the twenty-four hours.

In discussion of this case Dr. H. W. Cushing suggested that the boy may be suffering with a tumor of the pituitary body, although he stated that it would be difficult to give a diagnosis of such a case in an off-hand manner. Dr. T. H. Weisenberg, of Philadelphia, suggested that it was internal hydrocephalus, but thought the history was incomplete. In the discussion of Dr. Cushing's paper he declared that the osteoplastic flap which they use in Philadelphia may account for the poor results they have been getting in these palliative operations.

Direct Fixation of Fractures.—Paper read by Dr. J. B. Roberts, of Philadelphia. He said that there are a few cases that can be treated with the method suggested. He uses either wire nails or staples. Dr. G. W. Guthrie, of Wilkesbarre, told of how he treated a fracture of the olecranon by driving a nail through the fragment into the bone; the nail was removed at the end of a week. There was no loss of function; the patient had perfect flexion and extension. He holds that by this method less callus is formed. Dr. Thomson, of Scranton, related the history of a case in whom the fracture had existed for three months, and in whom he obtained union by directed fixation by means of a nail. Dr. Willard, of Philadelphia, believes more cases can be treated by this method than is generally held. He maintains that one form of fracture cannot be treated always by the use of the same material.

The Question of Lowered Gastric Secretion.—Dr. C. G. Stockton, of Buffalo, read this paper. The view recently advanced that the gastric secretion can be dispensed with is not well entertained in Dr. Stockton's mind; he states that the presence of the gastric juice in the duodenum stimulates indirectly the pancreas, and it regulates the movements of the stomach. He spoke of a condition where the gastric juice is absent without apparent cause. Depression, neurasthenia and hysteria produce suppression of this secretion; diseases of the brain cord and arteriosclerosis are factors in bringing about a cession in the secretion of the stomach. The absence of the hydrochloric acid in acute inflammatory condition of the stomach is a wise provision, as it would cause

considerable irritation to the mucose. Insufficient gastric juice at times produces diarrhea and particles of undigested food, especially proteids, are found in the stools. He holds that it is injudicious to give hydrochloric acid in carcinoma of the stomach, as the acid is a source of irritation. Poor gastric digestion, in his opinion, will institute poor intestinal digestion. No two individuals may be able to endure the same amount of hydrochloric acid, so that there is no standard as to the amount of acid necessary for the digestion in all people. Dr. Stockton holds that the stomach can be educated to do substantial work; therefore, a mixed diet should be given and not to be taken in small quantities at frequent intervals, although in some instances it is necessary to give the meals frequently. He is inclined to think that a more normal digestion is obtained with pyloroplasty than with gastro-enterostomy.

Surgical Treatment of Cardiospasm.—Paper read by Dr. Edward Martin, of Philadelphia. This condition may be due to traumatism, inflammatory lesions of the mediastinum, tumors of the cardia of the stomach and gastritis. There is an acute and a chronic cardiospasm. With the chronic form there is nearly always associated dilatation of the esophagus. These patients are in the habit of throwing up the food which has recently been taken without the slightest effort—the so-called “ruminants.” Cardiac cancer and diverticulum can be eliminated with the esophagoscope. Many of the patients must be fed by means of the stomach tube. His was a very obstinate one, and it was found necessary to open the stomach and dilate the cardiac opening of the stomach with the fingers; two fingers passed through easily, but the third with difficulty. Since the operation, nine months ago, the patient gained forty pounds.

Symptomatology and Diagnosis of Cancer of the Stomach.—Paper read by Dr. J. J. Gilbride, of Philadelphia. He said, the early symptom of cancer of the stomach is like gastritis; in some cases the onset is sudden. At the cardia of the stomach the tumor gives rise to symptoms like those produced by a foreign body. The fact that the patient looks well does not in any way exclude carcinoma, in his opinion. He finds it necessary to examine the gastric contents several times; one examination he regards as insufficient. In carcinoma of the stomach the quantity of hydrochloric acid decreases as the growth develops, but it may in some cases be present throughout the entire disease. The presence of lactic acid in the stomach when taken in conjunction with the other data will serve as an aid in the diagnosis. The washings of the stomach should be examined closely to determine the presence of tissue that might give a clue to the presence of a growth.

Gastro-enterostomy: Its Indications and Its Technic.—Paper read by Dr. W. L. Rodman, of Philadelphia. As indication for this operation he gives pyloric spasm, cancer of the pylorus, benign stenosis and hemorrhage requiring the stomach to be emptied quickly. The objection to the anterior gastro-enterostomy are pressure on the colon, vicious vomiting and the food is not acted upon by the most important part of the intestinal canal. He advocates the posterior gastrojejunostomy; it is necessary, in doing this operation, to make as short a loop as possible, in order to avoid the vicious vomiting. The technic he gave is based upon the operation

devised by Munyon and slightly modified by Peterson.

Dr. Tyson, in the discussion, gave the history of two cases which came under his observation recently and upon whom gastrojejunostomy had been performed for gastric ulcer. The first case died of vicious vomiting. The second one got well. Dr. Roberts maintains that there is a good deal of difficulty in making the diagnosis of the condition for which gastrojejunostomy should be done, owing to the fact that one cannot always distinguish between the functional and organic disorders.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held May 9, 1905.

The President, Joseph Fraenkel, M.D., in the Chair.

A Case of Acute Psychosis in the Course of Tabes: Presented by Dr. George H. Kirby.—The patient was a woman, fifty years old, whose family history was negative. Her early development had been normal. She was married at eighteen and had nine children, only three of whom were living. The last child was born fifteen years ago, and died at eighteen months. It was delicate from birth; its hair fell out, and it had some eye trouble which the doctor told her had been inherited. She questioned her husband at the time about a venereal disease, but he denied infection. She believed, however, that he had been treated shortly before this for some such disease. She had never seen any signs of disease on his body. She herself had had no sore, so far as she knew. She never became pregnant again. About eight years later, *i.e.*, in 1899, she began to have headaches and shooting pains in the legs. In January, 1903, she suddenly became exhilarated and lively, claiming that she was going to make a thousand dollars a night singing, and that she could heal the sick and perform miracles; she spent money foolishly, and began to drink. During her periods of excitement she had several fainting spells, but no convulsions. About a month after the onset of these symptoms she was brought to Ward's Island. A physical examination at the time of her admission showed that the knee-jerks were absent; Argyll-Robertson pupil; some Romberg's sway, and greatly diminished pain sensibility below the knees. There was a fine, regular tremor of the tongue and hands; no speech defect.

The main facts in the mental status were the following: She was quiet, pleasant in manner, perfectly oriented in time and place; she answered questions freely, was connected in speech, but tremendously expansive. She claimed that she had wonderful powers, could speak every language, and possessed a beautiful voice. On other topics the patient talked well to the point, and gave a good general outline of her life. There was no memory defect for either recent or remote events, but in her statements of certain remote dates there were discrepancies which she only partially realized, and was not able to fully correct. Her attention was good; she retained names and numbers well. Calculation was somewhat defective for anything beyond simple problems, but this was probably due to the fact that she had received very little education. The first specimen of writing, taken on admission, showed a few errors in the spelling of difficult words, with an occasional poorly formed letter and rarely an extra stroke. Later, the writing was practically without defect. After she had been in the hospital two and a half months, she rather suddenly became clear mentally, gained full insight into her

previously expressed grandiose ideas, and her memory was without defect. The physical signs of tabes remained unchanged. She left the hospital on June 27, 1903. A few months after her return home, she began to suffer from pains in the back and a sensation of constriction about the waist. She had difficulty in walking, and her legs would suddenly give way; or, if she bent over, she was apt to fall on her face. Her tabetic symptoms had been progressive, with no return of the mental trouble. She was now helpless so far as locomotion went. The joints were relaxed. Deep sensibility was lost in both legs. Three months ago she had an enormously swollen hip, which appeared rather suddenly and without pain; this had recently disappeared. The patient showed a wonderful amount of energy and perseverance. By crawling about on the floor and having things put where she could get them, she did her own housework—cooking, washing, etc. Her memory remained good, and she retained a full insight of her previous mental attack.

A Progressive Lesion of the Root of the Fifth Nerve, Producing Motor, Sensory and Trophic Symptoms:—Dr. J. Ramsay Hunt presented this case. The patient was a man, fifty-nine years of age, who had been a submarine diver for forty years. At the age of twenty-five he had a chancre of doubtful nature. His present disease began about sixteen months ago, and consisted of disagreeable drawing sensations and paresthesia on the left side of the face, in the distribution of the left fifth nerve. With this there was an associated weakness of mastication on the same side, and a tendency to a constantly chewing motion, which still persisted. Since the onset up to the present time, the affection had been gradually progressive. On April 12, 1904, about four or five months after the onset of these symptoms, he descended 45 feet below the surface of a reservoir to extricate a fellow-diver who had been held there for forty-eight hours in the suction of a large water-pipe. Before reaching the bottom, however, a feeling of faintness came over him, and he gave the signal to be drawn up. On reaching the surface he was a little weak, but otherwise felt as usual. He did not lose consciousness, and returned home without noting any ill-effects from his seizure.

The next morning, on awakening, he could not see with the left eye, and an oculist who examined the interior of the eye said that there had been a hemorrhage. Quite by accident the same day, on attempting to use the telephone, he noticed that he could not hear in the left ear. There was not, nor had there been any tinnitus aurium. Within two weeks the sight returned to the left eye, and the hearing was restored to the left ear. The symptoms in the region of the left fifth nerve continued to increase, and were as follows on his admission to the Cornell Neurological Clinic, April 24, 1905: Paresthesiæ and weakness in the distribution of the left trifacial nerve, associated with an incomplete anesthesia to touch, pain and temperature in the same area, and including the mucous membrane of the eye, nose, tongue and mouth on the affected side. There was an absence of the conjunctival and corneal reflex on the left side. He had a drawing sensation in the left face and gums, a feeling of irritation in the left eye, and the left nostril did not feel free. He had at no time had pains in the left face. The sense of taste was diminished on the left side, and the sense of smell, although not very acute on either side, was also diminished on the left. The left face was smaller than the right, and this did not seem to be entirely explained by the wasting of the temporal and masseters, which were atrophied on the left side. A large section of

the frontalis muscle was wasted, and did not respond either to voluntary innervation or to electricity; and the tissues were thinner than on the unaffected side. The following oculo-pupillary symptom was present on the left side, *i.e.*, slight ptosis, enophthalmus, and moderate dilatation of the pupil. An attempt to test the sweat secretion of the face by the administration of pilocarpin, and the tear secretion by irritation of the conjunctiva were negative. An ophthalmological examination made by Dr. J. H. Claiborne showed that the vision in the right eye was 20-30ths; in the left eye 20-50ths. The left disk was slightly pale and hazy, and a few old retinal hemorrhages were seen in the peripheral portion of the left retina. The ocular excursions were normal, with marked nystagmoid twitches on looking to the right and left, especially toward the left. He had had transient diplopia. The facial innervation was normal on the left side, with the exception that the upper outer half of the frontalis muscle did not respond at all either to innervation or the electrical tests. Electrical: The responses, both direct and indirect, to the galvanic and faradic currents were moderately diminished on the left side; no qualitative changes. The other cranial nerves, the gross motor power, the gait and station, the tendon, skin and pupillary reflexes were all negative. He had occasional vertiginous seizures, and suffered somewhat from insomnia, but no headaches.

Dr. Hunt said that the motor, sensory and trophic symptoms, without root pains, suggested a lesion of the nuclei of origin of the left fifth nerve. The nystagmus would also indicate pressure in the pons. The retinal hemorrhages must be regarded as an accidental complication. The temporary deafness, without tinnitus and with complete restoration of hearing, was more difficult of interpretation. Symptoms of hysteria were wanting. The nature of the process might only be conjectured; it was, however, progressive, and unassociated with general symptoms of tumor.

Dr. Charles L. Dana said he had had an opportunity to examine the case shown by Dr. Hunt, and it was certainly a very unique one. There seemed to be a progressive facial hemiatrophy, with progressive loss of function of the fifth nerve. There was a gradual wasting of the left side of the face, with a certain amount of motor loss, including also the motor branch of the fifth. There was no pain nor symptom of tumor. The condition could best be explained by some morbid or degenerative condition involving the nuclei of the fifth nerve, possibly a gliosis or a parasymphilitic lesion. The case might eventually be an aberrant form of tabes. Dr. Dana said he had seen some cases of tabes with these peculiar symptoms, but never with a progressive facial hemiatrophy developing in this artificial way.

A Case of Lead Poisoning, Probably Complicated by General Paralysis:—Reported by Dr. C. B. Dunlap, with specimens. The patient was a man, forty-seven years old, a painter, who was admitted to one of the State Hospitals on August 1, 1903, and died there seven months later. He had had painter's colic two years before admission, and had not been considered well since that time, though he had worked at odd jobs up to a week before entrance, at which time he left his boarding-house, was found wandering, in the street in an aimless, bewildered way, was arrested and taken to the police station. A woman with whom he had boarded previous to this time said that he had talked to himself, and was nervous and restless, but otherwise apparently normal. The certificate stated that he was very forgetful, took things not his own, and talked in a silly way. At the hospital he appeared

to be much exhausted, dejected and apathetic. He did not know where he was, or the nature of the place, or the date, and gave the date of his own birth incorrectly. He claimed to hear a voice that he could not place. Examination showed sluggish reaction of the pupils to light and accommodation. The tongue was tremulous. There was partial paralysis of the left arm and hand, and a much weakened grip on that side. There was apparent wasting of the muscles of the thenar and hypothenar group; this wasting was also present on the right side, but less marked. The elbow, wrist and thumb reflexes were present on both sides. There was slightly diminished pain sensation on the ulnar side of the left arm. There was apparent wasting of the shoulder muscles, more marked on left side; also of the back and gluteal muscles. The anterior tibial muscles showed some weakening, more marked on the left side. The knee-jerks were exaggerated; the plantar reflexes diminished. No clonus; no Babinski; no sensory disturbance. His speech was mumbling, and so low that it was often difficult to understand him. He said he was tired and exhausted, and knew that he was sick, but did not know what was the matter. He saw "visions and spirits," and believed he was in the hospital because he "did wrong." A month after admission he thought that he had had some brain trouble on entrance, but that he had improved. In this he was correct. In November he complained of vague pains in his legs. The following month he became irritable and quarrelsome, and subsequently his gait became unsteady. The latter part of January he began to show marked incoordination, with great exaggeration of the patellar reflexes. The muscles of the legs, hands and tongue showed a marked tremor, and there was a peculiar trembling speech intonation, with failure to properly pronounce many words. By the middle of February the speech was worse, and the hands so ataxic and tremulous that he could not feed himself. Mentally, he was depressed and worried about himself. Four days before death the incoordination was jerky, almost spastic at times. He was almost hypersensitive to pain stimuli. Wasting of the interossei of the hands and feet and of the muscles generally was noted. All the muscles responded to the galvanic current, but the response was slight in the gastrocnemii and interossei. The day preceding his death the twitching of the muscle-groups was still more marked.

Autopsy.—There was hypostatic congestion of the lungs; the spleen was soft and somewhat enlarged. The pia arachnoid was thickened and water-logged. The brain showed considerable thickness and toughness of the pia of the convexity and base. The basal vessels were fairly thin; there was no atheroma. There were no gross lesions, and on section, the appearance was normal, with nothing to explain the partial paralysis of the left arm and hand. There were no granulations in the fourth ventricle. Microscopically, sections taken from the paracentral frontal cortex of the formalin hardened brain showed the typical changes found in general paralysis, namely, infiltration of the pia with lymphoid and plasma cells, infiltration of the walls of the cortical vessels with the same elements and with pigment and pigment-carrying cells. There was also marked apparent increase in vascularity of the cortex; also plain neuroglia reaction, seen in the first layer of the cortex, in the form of numerous spider cells; disorganization of the cortex layers, and numerous rod cells, such as Nissl and Alzheimer found to be quite constant in general paralysis, and unusual elsewhere. The walls of many of the larger cortex vessels were so packed with cellular elements and so broken up

that the different coats were indistinguishable, and the lumen was often hard to find. Marchi stains of the paracentral lobules showed a few myelin-sheaths which were broken up into rows of fat droplets, indicating a myelin decay of moderate degree. In sections of the spinal cord, from the cervical thoracic and lumbar regions, a diffuse myelin degeneration was evident in the anterior or posterior roots.

This case, Dr. Dunlap said, presented many difficulties, and was shown in order to call attention to the absence of sufficiently reported microscopical examinations in cases of lead encephalopathy. Quensel, in 1902, working on this problem, stated that lead poisoning was capable of producing "all transitions up to the typical paralytic findings." In the case under discussion, there was no history of syphilis, no ependymal granulations in the fourth ventricle, and the history was far from typical of general paralysis. The speaker said he did not wish to say that this was a case of lead poisoning with the typical anatomical changes of general paralysis. It might have been a case of the latter affection, in which the plumbism was merely a coincidence.

Dr. T. P. Prout said he could recall three toxic cases resembling that reported by Dr. Dunlap, but none of them came to autopsy. The toxic symptoms that were particularly prominent were decided somnolence and a passive depression. All three of those patients came from a certain factory in Paterson, N. J., where rubber was manufactured, and the speaker said he was inclined to attribute the toxemia to the noxious gases that were generated in the factory and inhaled by the men.

Case of Brain Neoplasm.—Dr. William B. Noyes presented this case. The patient was an Italian boy, eleven years old, whose family and previous personal history was negative. He was one of eight children, three of whom had died at birth. There was no history of syphilis or tuberculosis. Two months ago he developed some affection of the eyelids resembling ptosis; this was noticed first on the right side, and disappeared after a month upon the application of a leech behind the ear. The left eye became similarly affected a month after the appearance of the condition on the right side. He has complained of frequent headaches, located in the region of the right ear and right frontal region. Examination showed the following condition: A left facial paralysis of a peculiar type, with continuous spasm and twitching of the orbicularis palpebrarum, and blepharospasm. Reaction to Faradism absent. The tongue showed choreiform movements, or a fine fibrillary twitching. There was double-choked disk; no paralysis. The temperature usually ranged between 99° F. in the morning, and 100° or 101° F. in the evening. An internal strabismus subsequently developed, due apparently to overactivity of the internal rectus rather than to paralysis of the external rectus. Conjunctiva of the left eye was anesthetic, but there did not seem to be any other fifth nerve symptom. The left knee-jerk became exaggerated; there was some ataxia on standing with the eyes closed. The headaches recurred frequently, though yielding to ergot. The boy's general health remained good enough to permit him to play in the yard. Dr. Noyes said the case was regarded as one of cerebral neoplasm, located in the pons, or, according to the view of one observer, in the facial center in the cortex. The speaker said he believed it was located in the pons or cerebellum, and pressing on the pons because of the involvement of so many cranial nerves or their nuclei. The nature of the neoplasm was doubtful, excepting that the temperature strongly suggested

an abscess. The symptoms, however, seemed to be too distinctly limited to make an abscess probable.

Dr. William M. Leszynsky said that one of the interesting peculiarities of the case shown by Dr. Noyes was the left facial spasm, a certain degree of which was sometimes noted after a facial paralysis in older patients. From the history of Dr. Noyes' case, the speaker said he would be rather led to infer that the lesion, instead of being an actual neoplasm, was probably a disseminated one, or that the symptoms were due to a certain amount of basilar meningitis. It was hardly necessary to assume the presence of a neoplasm on account of the extensive choked disk, and he doubted whether any ophthalmologist who looked into the eye and found hemorrhages and choked disk could make the diagnosis of a neoplasm in contra-indication to a basilar meningitis.

Incomplete Transverse Myelitis from Exposure after Working in Caisson.—Dr. I. Abrahamson reported this case. M. G., male, a Russian laborer, came under observation on March 23, 1905. His family history was unimportant. Seven years ago the patient had typhoid fever. He had long been addicted to the excessive use of beer and cigarettes. Denied venereal infection. Up to fourteen months ago he worked for three hours daily in the Pike Street caisson. For three days previous to the onset of his present illness he had been dissipating and drinking heavily. He entered the exhaust-chamber feeling ill at ease, and remained there twenty minutes; while there he drank some hot coffee, and then went out into the rain without adequate protection, and reached his home soaked and cold. About ten minutes after leaving the exhaust-chamber he began to vomit, and was seized with violent pains in the epigastrium. He felt cold, with chilly sensations and numbness in the legs, especially the left. At the same time there was increasing weakness in the legs, so that within fifteen minutes after going to bed he was completely paralyzed from the umbilicus down. There was also retention of urine and feces, and marked dyspnea and palpitation. He was taken to the Gouverneur Hospital, where an examination revealed the above train of symptoms. After a month or so he slowly began to improve, but he still suffered from constipation and delayed urination. The gait was very spastic, with slight unsteadiness. The lesion in this case, Dr. Abrahamson said, was an incomplete transverse myelitis. Etiologically, the case illustrated the importance of alcoholism and exposure as predisposing to caisson myelitis, facts which numerous writers had already accentuated.

Case of Syringomyelia.—Also reported by Dr. Abrahamson. The patient was a Hungarian, forty-two years old; a tailor by occupation. He had five living children; one child had died of measles. His wife had never miscarried. His father died of tuberculosis; his mother of gangrene of the leg. He had five living sisters, who were all well. His family history was otherwise negative. The patient stated that he suffered from frequent attacks of bronchitis. He denied a venereal history. He used alcohol and tobacco in moderation. Eight years ago he slipped and fell on the ice, striking his back. He did not lose consciousness, but suffered severely from pain in the region of the thorax on both sides. He remained in bed one week, and then returned to work. For two years previous to his injury he had suffered from tingling and cold paresthesia in the left upper extremity, which he attributed to his habit of sleeping on the left side, resting his head on his hand, and thus compressing the left arm. The fall apparently aggravated his symptoms, and subsequently he noticed that his fingers were

numb, and that he could not feel objects distinctly with his left hand. With this hand he also failed to distinguish between hot and cold with certainty. The numbness and loss of sensation gradually extended to the left supraspinatus region, the occiput, and more recently to the submaxillary region, the left anterior chest, the left posterior thorax, and finally the right shoulder and arm were involved in the area of cold paresthesia. The patient complained of pain in the left interscapular region during the past eight months, and of a sense of constriction about the left chest, neck and occiput, as if the entire region was encased in plaster. In the neck he had a choking sensation, interfering with swallowing and speaking, and the left ear seemed to be blocked at times. Eight months ago, he noticed that the left upper extremity was weak, with wasting in the thenar region. Recently, fibrillary twitches developed in this arm, with excessive perspiration in the left axilla. There was no rash; no joint changes; no trophic skin changes. There was some delay in urination, and the bowels were costive. There was a diminution of sexual potency. No diplopia; the other special senses were normal. The spinal column was scoliotic, with a convexity to the left in the cervical, and to the right in the dorsal region. In walking, the patient dragged the left leg somewhat; no Romberg.

Dr. Abrahamson said that the diagnosis of syringomyelia was easily inferred from the symptoms in this case. It was of special interest because of the fact that the upper border of sensory disturbances corresponded exactly to the sensory distribution of the first cervical segment on one side only, and also because of the very slow progress of the disease, especially in the motor areas.

Some Forms of Toxic Deliria.—Dr. George H. Kirby stated that, in addition to the alcoholic group of psychoses, a smaller number of cases were found in whom the mental disorder could be attributed with more or less certainty to some exogenous toxic substance. In the service of the Pathological Institute on Ward's Island a variety of such cases had been met with. These had included intoxications from the use of morphine, cocaine, the bromide salts, chloral, phenacetin, bromo-seltzer, and also from the excessive use of tea and coffee. Dr. Kirby then reported in detail three cases of toxic deliria. The first of these was due to the excessive and continuous use of phenacetin; the second to the use of chloral taken after alcoholic excesses, and the third to the use of bromides for the relief of insomnia. These cases all had certain symptoms in common. The patients were not clear as to their surroundings; they apprehended readily what was said to them, and were able to grasp, more or less, the simple relations which came under their own eyes, but they invariably mistook the situation in which they were placed. They were especially confused over the identity of persons, while time orientation suffered comparatively little. Consciousness regarding their own personality remained intact, and, with one exception, the patient's grasp on the remote past was clear. Perhaps the most striking symptom was the tendency to produce spontaneously detailed accounts of extraordinary occurrences, dream-like in character, and mostly of a terrifying and fearful content. Especially noteworthy was the fact that motor agitation and fear reactions might be entirely absent. Improvement in all the cases was gradual, and the belief in the delirious experiences remained some time after the patients were otherwise clear. The condition had to be differentiated from (1) delirium tremens; (2) general paralysis; (3) Korsakoff's psychosis; (4) the great

variety of symptom types in the infective-exhaustive group of psychoses.

Dr. Joseph Collins said the cases Dr. Kirby had related were not unlike some that the speaker was constantly seeing in the general medical wards of the City Hospital. They were cases that had given him a great deal of difficulty in classifying satisfactorily, save on a purely etiological basis, and latterly he had included them under the head of Korsakoff's syndrome. They were cases of subacute delirium, not of sufficient severity to cause them to be committed to an asylum, and were characterized by their possession of mistaken identity, with considerable credulation, which varied from time to time, and a lack of orientation as to time and place, which also varied from day to day. They did not have the physical signs of a generalized neuritis. Most of these cases occurred in women, and recovery took place in from four to sixteen months. Two such cases were under his observation at the present time. They were usually persons who were addicted to the excessive use of alcoholic stimulants, and then took chloral or the bromides or phenacetin or bromo-seltzer to clear up on. They did not develop the symptoms of multiple neuritis, but there was some tenderness on deep pressure over the nerves. Dr. Collins said he saw no reason for not considering these cases as mild, aborted forms of Korsakoff's syndrome, or the acute delirious condition described by Bonhoefer. They invariably recovered from the first attack. The speaker said he could not recall having seen a case which had not recovered.

Dr. Smith Ely Jelliffe said the question was interesting from a chemical and toxicological standpoint, as chloral was an alcohol derivative. Reduction compounds of chloral were of the nature of a trichlorethyl-aldehyde, the drug being formed by the action of chlorine on ethyl alcohol. The integrity of the liver must be assumed or assured in order that chloral should be reduced to the product mentioned, because its reduction is dependent on certain undetermined liver activities. Under conditions in which these activities are modified or impaired, it would be interesting to see what the relation would be between the diminished liver reduction and the poisonous effects induced by chloral in these cases.

Dr. Henry S. Noble, of Middletown, Conn., said that in the cases of Korsakoff's disease with which he had come in contact, the prognosis had not been as favorable as in those referred to by Dr. Collins. They were seen in a large institution, and were possibly far advanced, or there may have been previous attacks, but they were certainly of a chronic character and did not recover. The speaker said he could trace a resemblance between the case reported by Dr. Kirby and Korsakoff's disease; they seemed to depend on a toxic influence, and to that extent, at least, fell in the same category. It was not at all necessary, in Korsakoff's disease, that the symptoms should be attended with a neuritis, although a neuritis was often present.

Dr. R. A. Defendorf, of Middletown, Conn., said he did not think Dr. Kirby had established the fact that alcohol was not the etiologic factor in the cases he had reported, instead of chloral and phenacetin. The speaker said he had seen cases of alcoholic deliria with symptoms very similar to those in two of the cases reported, particularly those in which hallucinations were absent. He did not agree with Dr. Collins that the symptom complex in those cases closely approached that of Korsakoff's disease, principally on account of the prognosis. He had yet to see a case of Korsakoff's disease where the patient had recovered.

Dr. Kirby, in closing, said he could readily under-

stand that many of these patients with symptoms of toxic deliria did not reach the asylum. In some instances, the symptoms were due to a combination of toxic influences. In only one of his cases could the symptoms be attributed to a single drug, and that was phenacetin. Usually, Korsakoff's psychosis, whether accompanied by a polyneuritis or not, was a chronic delirium. In the cases he had reported, the disorder was acute, and a study of the delirium disclosed several points of dissimilarity. The attention of these patients was easily engaged, but very hard to hold, while in Korsakoff's delirium the patients had a fairly good power of attention. Dr. Kirby said he had never seen a case of Korsakoff's disease completely recover. In the cases he had reported, the patients fabricated along a certain train, while in Korsakoff's disease they were more apt to vary.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, held May 9, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Multiple Myomectomy in Early Pregnancy.—Dr. A. Brothers related the history of a woman, twenty-six years of age, who had been married five weeks and presented all of the symptoms of early pregnancy. She had always been well and had no knowledge of the presence of any tumor prior to her marriage. The last menstruation, due three weeks previously, did not appear, but crampy pains began and continued at intervals, finally localizing in the right side. An examination revealed the presence of a large, hard tumor in the right side of the abdomen and a small one in the pelvis, which could be differentiated from a probably early pregnant uterus. The symptoms were thought to be due to a twisted pedicle of the large tumor. A myomectomy was planned on account of the age of the patient, and at the operation the larger tumor was found to be a large myoma with beginning torsion of its pedicle which was attached to the right horn. A smaller tumor, similarly attached, was also removed, as well as four other smaller but sessile tumors, the most difficult one being located in the lower uterine segment. The uterus was large and soft, and had the usual appearance of a pregnant uterus. Patient left the hospital on the eighteenth day, complaining only of morning nausea.

Dr. H. J. Boldt presented the following specimens: (1) Ovaries and tubes removed for acute suppurative salpingitis and chronic ovaritis from a multipara, who had been complaining of severe pain and profuse menstruation, in spite of persistent local treatment and a recent curettage. (2) A uterus removed for chronic metro-endometritis from a patient, forty-two years of age, who had been suffering for three years, in spite of local treatment and several curettings. (3) A multilocular tumor of the ovary, shown by the histological examination to be a papillary cystoma. Amenorrhea had aroused the suspicions of pregnancy, for which she had consulted a physician. (4) A subperitoneal myoma, showing beginning myxomatous degeneration. (5) An ovarian and tubo-ovarian abscess that started from a criminal abortion performed four months previously. (6) A submucous myoma, resembling an adenomyoma in its situation, removed per vaginam. (7) A large myofibroma removed by abdominal hysterectomy. (8) Uterus and appendages, the seat of chronic metritis and bilateral purulent salpingitis, removed from a

patient, forty-two years of age, who had been ill with a septic infection following a confinement two years ago.

Fibrosarcoma of the Ovary with Twisted Pedicle, Associated with Adenocarcinoma of the Rectum.—Dr. H. N. Vineberg presented specimens he had removed from a patient, thirty-two years of age. An examination, six weeks after a normal labor, had shown the pelvic organs to be normal, with the exception of a slight enlargement and prolapse of the right ovary. Twenty-one months later, after suffering considerable pain for several months, which lately had been associated with rectal tenesmus and more or less mucous diarrhea, an examination showed the presence of a large, solid tumor situated in front of the uterus, which was crowded against the rectum. The opinion of other consultants that the tumor was a fibroid and that operation might be delayed, influenced the patient to wait. An attack of severe pain four weeks later made the diagnosis of a twisted pedicle probable, and determined the patient to submit to an operation. There was considerable ascites, and the pedicle of the tumor had undergone one and one-half twists. Pathological examination showed it to be a fibrosarcoma of the ovary. The rectal symptoms persisted and a small mass was felt behind the uterus that was thought to be either the left ovary or a small exudate. Four months later, on account of the rectal symptoms and the occurrence of a rectal hemorrhage, another examination revealed the tumor as felt at the time of leaving the hospital. Examination with the sigmoidoscope showed just beyond the third valve an irregular growth, the size of half a mandarin orange, situated in the anterior wall, a piece of which was found histologically to be an adenoma destruens. The patient delayed the operation for six weeks when the mass was found to be considerably larger. The operation was performed through the posterior vaginal wall. After a transverse incision in the posterior vault the peritoneal cavity was opened and the intestines walled off with gauze. A longitudinal incision was then made through the posterior vaginal wall from the transverse opening to the perineum and sphincter ani, but not including it. The vaginal wall was then dissected back and the rectum divided about $2\frac{1}{2}$ inches from anal margin and sigmoid portion pulled down until the growth was delivered and the rectum could be divided about an inch above it. The divided ends were then sutured with silk. The patient has done well in spite of poor general condition. A small fecal fistula persists, although a fair amount comes through the anus, over which she has perfect control. Histological examination showed the growth to be an adenocarcinoma.

Large Myofibroma Associated with a Fibrosarcoma of Right Ovary.—Dr. H. N. Vineberg presented these tumors: The patient, aged forty-nine years, had known she had a tumor of the uterus for seven years, which had increased rather rapidly in size for the past few years. Her chief symptoms had been a feeling of weight, general weakness and profuse menstruation. A large nodular tumor was present in the right side of the abdomen, reaching very nearly to the liver. The uterus was pushed upward by another hard and smooth tumor that almost completely filled the true pelvis. The latter tumor proved to be a fibrosarcoma of the right ovary; the other a pedemculated uterine fibroid.

Dr. H. C. Coe, in the discussion, referred to three cases of pregnancy, complicated by fibroids, he had

recently seen, in each of which the indications for treatment were different. In one, an incomplete abortion, the uterus was completely emptied; in the second case a sudden attack of severe pain was found to be due to the dislodgment from the pelvis of a fibroid tumor. Delay was advised. In the third case multiple fibroids were present, and delay until full term was advised, doing then a Cæsarian section and, if necessary, a supravaginal hysterectomy. If, in general, the patients are only five months advanced in pregnancy, he thinks it is better to allow them to go to full term and do, if necessary, a Cæsarean section.

Dr. Ralph Waldo reported a myomectomy he had successfully performed in the third month without interruption of the pregnancy.

Dr. R. A. Murray thought it was the consensus of opinion that the emptying of the impregnated uterus in the presence of a fibroid was a serious matter, even at full term. Necrosis is apt to occur, and many die from sepsis. He thinks, in general, it is better to allow them to go to full term, unless they are slightly attached. He related a case in which he had done this procedure and performed a Cæsarean at full term.

For How Long a Time Should We Enjoin Rest in Bed after Abdominal Section?—Dr. Francis Förster, under the above title, read the paper of the evening, basing his remarks upon the statement of one of the members that he allowed his patients up just as soon after operation as they chose. While he thought any endeavor to cut loose from the habitual in operative treatment should be welcomed, yet the safety of the patient should be the first consideration. In the discussion he considered the following factors: Condition of patient, character of operation, length and locality of incision, method of suturing and suture materials. In conclusion he did not think the tendency to shorten the period of rest in bed was advisable, except for suitable cases, and that any attempt to shorten this period to a few days was a hazardous experiment.

Dr. H. J. Boldt, in the discussion, said Dr. Förster's paper is purely theoretical, inasmuch as he had not tried the procedure of allowing the patients up early. Dr. Ries, of Chicago, had first adopted the plan, and he had followed his example, allowing the patients to get up as soon as they wished, whether it was a few hours or a few days after operation. Dr. Boldt stated, his patients did better and he had no accidents. In a number of cases his patients had left the hospital in seven to eight days after operation. In reply to questions, Dr. Boldt said he used plain catgut for peritoneum, interrupted chromic for muscles and plain for the rest of the work. He used the mattress suture and adhesive plaster running around the entire body. He was not influenced at all by the length of the incision.

Dr. H. N. Vineberg said, patients had complained so much of the adhesive plaster that he had been influenced to remove it too early in some instances, so that now he always left it on for ten or twelve days. It seemed to him the condition in the pelvis should determine the length of time patients should rest. He thought it would be extremely hazardous to allow patients up to six or seven days after a severe operation, and in case of fibroids with large veins embolism would be apt to result.

Dr. H. C. Coe thought Dr. Förster's conclusions were so self-evident that he was surprised that they

were questioned. He thought the medicolegal aspect of the question should be considered, as he was afraid a death from embolism in a patient who had been allowed to get up so early could hardly be defended. Thrombophlebitis was not so very uncommon, even after a simple section kept in bed the usual length of time. He therefore could not agree with Dr. Boldt.

Dr. Ralph Waldo said that he had had a hematomia of the abdominal wall occur in a patient he had allowed up earlier than usual, and since then he had kept his patients in bed at least two weeks.

Dr. Leroy Broun stated he would hesitate to adopt this method without knowing something more of the results, as he thought the nervous disturbance after an operation was to be considered as well as the histological condition of the wound.

Dr. W. E. Studdiford asked what proportion of cases wish to get up the third day. He did not think that after the severe operation patients could get up without injury.

Dr. J. Milton Mabbott stated that from a theoretical standpoint a patient's health fails to improve after a certain number of days in bed without exercise or massage, although in obstetric practice the incomplete involution of the uterus prevented them from getting up so early. He thought it was fair for a certain number of experienced men to give this method a trial.

BOOK REVIEWS.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS.

By LEWIS A. STIMSON, B.A., M.D., LL.D. (Yale), Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's, and Christ Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Lea Brothers & Company, New York and Philadelphia.

SINCE the days of the "natural bonesetters," the scientific investigation of fractures and dislocations has progressed steadily until it has almost reached the stage of a specialty. In no other field is the resourcefulness and individuality of the medical attendant brought more strongly into play, and likewise in no other field is his effort more apt to live a burden to his patient and a mockery to himself. A thorough and comprehensive knowledge of this branch constitutes an exacting study. General surgeries almost invariably allow only sufficient space for leading principles, whereas the work in hand commends itself on account of its full and adequate treatment of the subject.

This volume is not an unfamiliar one to the medical profession, since for several years it has enjoyed a wide popularity. The new Fourth edition retains the same general characteristics of the edition of 1899, therefore no detailed description of its present form is deemed necessary.

Five years have elapsed since the issue of the previous edition and during that time a distinct advance, practical and scientific, has been achieved. The application of the X-ray to this line of work has revealed many hitherto obscure conditions, such as fractures complicating joints, which are now more accurately diagnosed; also, a greater confidence is manifested toward the literature of reported cases with a consequent larger availability of authentic data.

As formerly, the records of the House of Relief

(Hudson Street Hospital), New York, furnishes chiefly the material upon which this volume is founded. There, during the period from 1894 to 1903, 12,090 fractures and 1,239 dislocations came under observation. From this fact the author feels that the personal form given the work is justifiable.

The most noteworthy changes are the result of the more definite understanding gained through the agency of the Roentgen ray. It is now known that in Colles' fracture comminution or splitting of the lower fragment is frequent even in early adult life, that the displacement backward of the fragment is not commonly so marked as has been supposed from the appearance of the limb, and that the styloid process of the ulna is infrequently broken. Likewise, from the recent observations, it has been possible to simplify and more accurately classify fractures occurring at the lower end of the humerus in the young.

There is an evident trend toward the more frequent resort to open operations, both where fragments are difficult of reduction and fixation, and for the relief of dislocations irreducible, habitual and "ancient." In regard to the last of these conditions, Dr. Stimson exhibits a spirit of conservatism. He says: "At the present time wound infection is of more frequent occurrence after operative reduction of old dislocations or the large joints than other primarily clean operations, and an almost inevitable result of such infection is anchylosis of the joint; and even in cases which escape infection the restoration of function is usually incomplete. . . . The improvement to be got by a chance of position may be far too slight to justify the risks of an operation so extensive as would be required for reduction, and an almost equal improvement might be had by an osteotomy."

The excellent skiagraphic work with which the volume has been enriched should not be overlooked. Particularly valuable are the ones depicting injuries in and about the wrist-joint.

Far too few books of this character exist to-day. Dr. Stimson has chosen one specific field, collected authentic material and thoroughly analyzed it. The wide popularity accorded his former editions signifies the high regard in which his efforts are held by the medical world.

BOOKS RECEIVED.

MANUAL OF MIDWIFERY. By Dr. Henry Jellett. 8vo, 1,159 pages. Illustrated. Wm. Wood & Co., New York.

A NURSE'S GUIDE. By Dr. Nicholas Senn. Second edition. 8vo, 204 pages. Illustrated. W. T. Keener & Co., Chicago.

REFERENCE HAND-BOOK FOR NURSES. By Amanda K. Beck. 12mo, 177 pages. W. B. Saunders & Co., Philadelphia and London.

AN ATLAS OF DERMATOLOGY. By Dr. Morgan Dockrell. 4to, illustrated. Longmans, Green & Co., New York, London and Bombay.

ORTHOPEDIC SURGERY. By Drs. E. H. Bradford and R. W. Lovett. Third edition. 8vo, 669 pages. Illustrated. Wm. Wood & Co., New York.

TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. By Dr. J. W. Holland. 8vo, 568 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

DISEASES OF THE BLOOD. By Drs. P. Ehrlich, K. von Noorden, A. Lazarus and F. Pinkus. Translated and edited by Dr. Alfred Stengel. 8vo, 714 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, OCTOBER 21, 1905.

No. 17.

ORIGINAL ARTICLES.

PERICARDIAL EFFUSIONS.¹

BY FRANK A. JONES, M.D.,
OF MEMPHIS, TENN.

PERICARDIAL effusions have been selected for our consideration because so little has been written upon such an important subject. Text-books dismiss it with entirely too little attention. We shall not, owing to lack of time, dwell upon the three stages, but shall confine ourselves to the stage of effusion.

Pericarditis with effusion exists much more frequently than is generally supposed. In a conversation a few months since one of the ablest surgeons in the South stated to me that during a practice of nearly thirty years he did not remember ever having seen a case of pericarditis with effusion. Such a statement coming from so able a source naturally makes me ask the question: Is it possible that it does frequently exist and is not recognized? Pericardial effusions may be serofibrinous, hemorrhagic, or purulent, all of which types the writer has seen in his out-clinic at the Memphis Hospital Medical College and in his ward service at the St. Joseph's Hospital. It may seem dogmatic to some when the essayist makes the statement that the physical signs and symptoms of a pericardial effusion are just as characteristic and just as easy of recognition as the physical signs and symptoms of a pleuritic effusion. The two conditions are frequently confused, because the physician has either been careless in his examination of the patient, or because he has not properly applied the great fundamental principles of physical signs.

Now let us dwell briefly upon the physical signs of pericardial effusions. By inspection we learn much. We notice in a great many cases that the apex beat is not visible, that the patient is suffering with pronounced dyspnea. This dyspnea is more marked in pericardial effusions than in any other affection. Cyanosis is marked in some cases, in others it is absent. As to what we shall find by inspecting the cardiac region depends entirely upon the degree of the effusion. Where the effusion is beginning to form, we often notice tumultuous action of the heart, a forcible apex beat, but when the effusion is large, in my experience, it is a difficult matter to locate an apex beat by the application of any of the physical signs. By palpation we find the apex beat is absent when the effusion is marked, that there is no cardiac impulse to the palpating hand, that the pulse is rapid and feeble. Percussion and auscultation are the two great phys-

ical signs upon which we must depend in making a diagnosis, just as we would in a pleuritic effusion. The area of *flatness* on percussion in pericarditis with effusion is characteristic.

I use the term *flatness* with emphasis and advisedly. I wish to call your especial attention to the careless, indiscriminate and unscientific application of the term *flatness* as a synonym of *dulness*. Flatness and dulness have nothing in common. There is as much difference between them as there is between a tenor note and a soprano note. Yet, in a careful reading of all the best books on physical diagnosis and practice of medicine, you will find the terms flatness and dulness used interchangeably. A fluid medium will not yield dulness on percussion, but flatness. You may fill any vessel with any kind of fluid and exclude the air, be that vessel metal-like or wooden, and by percussing the walls of the containing vessel you will get a flat note. On percussing the heart, where there is a well-marked pericardial effusion, we elicit a flat note triangular in shape with the base downward and the apex upward.

Rotch, of Boston, and Ebstein, of Germany, have called attention to a phenomenon which I have found a valuable aid in arriving at a proper diagnosis. I refer to *flatness on percussion in the fifth interspace to the right of the sternum*. Upon auscultation we shall find that the heart sounds are distant, muffled or absent, according to the quantity and quality of the fluid, and the state of the valves and the condition of the cardiac muscle. In many cases I have found the heart sound absent, in others the to-and-fro friction rub at the base, and upon several occasions I have detected a blowing mitral systolic murmur at the apex. This triangular flatness on percussion is the safest of all the physical signs in arriving at a diagnosis. It matters not what may be the evidence by auscultation and palpation. To confuse a pericardial effusion with a pleuritic effusion is inexcusable, provided the physician has carefully applied his physical signs and has properly interpreted their significance. Yet the mistake is frequently made. I have seen two such instances during the last six months. In pleuritic effusions on the left side there will, in nearly every case, be displacement of the heart and apex beat to the right, the displacement, of course, depending upon the degree of the effusion. The apex beat in pleuritic effusions on the left side can always be seen and felt. In pericardial effusions, on the other hand, if there be cardiac displacement it will not be to the right as in pleuritic effusions, but, in my experience, upward.

In the pericardial effusions in the great ma-

¹ Read by invitation before the Arkansas State Medical Association, Little Rock, May 16, 1905.

jority of cases the apex beat can neither be *felt* nor *seen*.

As I stated in the outset of my paper, time will not permit discussing the three stages of pericarditis, suffice it to say that very often, at the stage when the effusion is becoming manifest, the heart action is tumultuous and apex beat is forcible, the heart sounds are accentuated, the pericardial friction rub is often heard. It is therefore well in any case of pericarditis, it matters not what the cause may be, to watch carefully for the development of an effusion just as you would in a simple case of pleurisy. In pleuritic effusions the area of the distribution of flatness on percussion has but little in common with that of a pericardial effusion.

In pleuritic effusions the flatness is marked over the area of the fluid, namely, laterally, anteriorly and posteriorly. In pericardial effusions, on the other hand, the area of flatness is over the cardiac region, is triangular in shape, with the base downward and the apex upward. Upon auscultation in pleuritic effusions there is in the majority of cases absence of voice sounds and absence of the respiratory murmur. In pericardial effusions the respiratory sound is clear and distinct posteriorly and laterally.

Bamberger has called attention to an area of tubular breathing at the angle of the scapula in some cases of pericardial adhesions and in pericardial effusions. I do not attach much importance to this sign, as there are too many others which are more significant and more reliable.

Since November 1, 1904, the writer has seen ten cases of pericarditis with effusion in his ward service at the St. Joseph's Hospital and in his out-clinic at the Memphis Hospital Medical College. All of the patients were male. Nine were negroes, the youngest a negro boy twenty years of age, the oldest a white man forty-two years of age. Clinically, two were the results of a pericarditis accompanying and following lobar pneumonia. Three were tuberculous. Two were found following acute inflammatory rheumatism, and three were traceable to the poison of grippe. The diagnosis in each case was verified by the aspirating needle. Three of the series are of interest:

On November 1, a white man, aged forty-two years, single, occupation a machinist, was admitted to my wards at St. Joseph's Hospital, suffering with lobar pneumonia at the base of the left lung. He admitted having had syphilis several years since and having spent some time at Hot Springs. He was addicted to drink and had been on a spree several days previous to his sudden attack of pneumonia. A general arteriosclerosis was present. Upon a physical examination I found in addition to the lobar pneumonia a pronounced pericarditis. The pericardial friction sound was quite characteristic and classic. Dyspnea was great. On palpation the heart action was tumultuous and irregular. I instructed the interne to watch him carefully with reference to a developing pericardial effusion.

The pneumonia was delayed. Convalescence was long drawn out. The physical signs of pericardial effusion became more marked each day in spite of all therapeutic measures. Gradually the apex beat was seen to be less tumultuous, and at the end of the second week it could neither be seen nor felt. The dyspnea became distressing. Auscultation and percussion were resorted to daily. Upon auscultation the heart sounds gradually became more distant until they could not be heard at all. The dull note on percussion over the cardiac region and over the lung gradually gave way to *flatness* over the cardiac region and to a hyperresonant note over the lung. I aspirated in the fourth interspace near the left border of the sternum, and withdrew an ordinary hypodermic syringe of a serofibrinous fluid. I immediately sent him to the surgical ward, and Dr. E. E. Francis, who was on surgical duty, aspirated him with a Potain aspirator and withdrew six ounces of fluid. (I have no time nor patience with the metric system of measurements. It does nothing but confuse the American doctors. France and Germany may have it if they want it, but the old way is good enough for me.) His dyspnea immediately disappeared, the operation was performed at 10 A.M. He fell into a quiet sleep, and slept the remainder of the day and nearly all night following. The heart sounds became distinct. The flatness over the cardiac region disappeared. This relief, however, was only temporary, for all the previous symptoms and signs began to develop again, and on the seventh day after Dr. Francis' aspiration he was operated upon the second time by Dr. Francis, and about the same quantity of fluid was withdrawn. The patient remained in the hospital two weeks after the second aspiration, gaining in strength each day. All of the symptoms and signs of pneumonia and pericarditis with effusion disappeared. He left the hospital to all appearances well.

On March 1, a colored man, aged twenty-three years, came to my clinic at the Memphis Hospital Medical College. He presented his clinical card, showing that he was first seen at the clinic June 3, 1904. Upon looking up his record I saw that the diagnosis at that time was pleuritic effusion on the right side. The records showed that he had had pneumonia in the right lung in April, prior to his first visit in June, 1904. The records also showed that he had been sent to the City Hospital for surgical relief of pleuritic effusion. The hospital records showed that he had been aspirated and had remained in the hospital three weeks and had been discharged. When he came to the clinic on March 1, he had all the classic signs of pericardial effusion, namely, the pronounced dyspnea, the absence of the apex beat by inspection and palpation, the triangular flatness on percussion, the flatness in the fifth interspace to the right of the sternum (Rotch's signs), absence of heart sounds on auscultation.

He had no temperature, pulse was 140 and hardly perceptible at the radials. Extremities

were cold. I aspirated him before my class in physical diagnosis with an ordinary hypodermic syringe, and withdrew a syringe-ful of pus. I sent him to the City Hospital and referred him to Drs. John M. Maury and M. Goltman, who were on surgical duty. Drs. Maury, Goltman and myself aspirated him some six or eight times after his arrival at the hospital, but we failed again to find pus. He died one week after he had been admitted to the hospital. A post mortem was held by Dr. George Livermore, Pathologist to the City Hospital. There was tuberculosis of lungs, pleura and mediastinum, with universal adhesions. Upon opening the pericardium about a pint of pus was evacuated. Evidently this was a clear case of tuberculous pericarditis.

On May 8, a colored boy, aged twenty years, came to the clinic. His history was vague. He stated that he had never been sick until about three weeks prior to his coming to the clinic, at which time he was attacked with a chill and headache, followed by nausea and vomiting. He had had a continued type of fever since the initial chill. He stated that he felt well and had not been compelled to take his bed, and that he wanted advice about his abdomen swelling. Upon examining his abdomen I found a well-developed ascites. He had a temperature of $102\frac{3}{4}^{\circ}$ F., pulse 110, and good volume. Upon examining his chest, as is my custom in nearly all my clinics, to my great surprise I found many physical signs of a pericardial effusion.

By inspection and palpation the apex beat could not be found. On percussion the characteristic triangular flatness was present, also the flatness in the fifth interspace to the right of the sternum (Rotch's sign). On auscultation the heart sounds were distant. At the base a classic to-and-fro pericardial friction rub could be heard. He had no cough. Physical signs with reference to the lungs were negative. The most remarkable feature about this case was the absence of dyspnea. There were enough physical signs of pericardial effusion present to justify an aspiration. I withdrew a syringe-ful of serofibrinous fluid. Clinically I think we can class this as a case of tuberculous pericarditis and tuberculous peritonitis as evidenced by the ascites. I could make out no enlargement of the liver, and in nearly all cases of pericardial effusion the liver is enormously engorged and enlarged. I still have this patient under observation. Dr. McElroy, of Memphis, is making reports on the blood and urinary findings.

In conclusion let us recapitulate and accentuate some facts: (1) Do not confuse a flat note on percussion with a dull note. (2) In all cases of suspected pericarditis watch carefully with reference to the developing effusions. (3) Apply the physical signs carefully and cautiously, thereby saving yourself the embarrassment of confusing pericardial effusions with pleuritic effusions.

ANTITOXIN FOR POISONOUS MUSHROOM INTOXICATION: A PRELIMINARY COMMUNICATION.¹

BY W. W. FORD, M.D.,

OF BALTIMORE, MD.

SINCE Kobert's investigations in 1891 upon the nature of the toxins of *Amanita phalloides* and *Helvella esculenta*, no contributions of value have appeared in the literature. Kobert¹ showed that the extract of both these fungi was strongly hemolytic for the erythrocytes of a very large number of mammals, and attributed their toxic action to their blood-laking property. To this substance, previously known as Phalloidin, Kobert gave the name *Phallin*. Two years later Seibert,² working in Kunkel's laboratory, attempted to disprove Kobert's conclusions, and in 1897, Claisse,³ in Lyon, attacked the question from the standpoint of serum therapy. The specimens of fungi which Seibert employed were inaccurately identified and he failed to demonstrate any hemolytic properties in extracts from them. Claisse succeeded in obtaining a toxin which would kill small animals when injected subcutaneously, but failed to demonstrate any antitoxic action in the serum of the animals experimented upon, although he apparently succeeded in immunizing rabbits so that they would resist otherwise fatal doses.

The number of deaths from the consumption of poisonous fungi is by no means small, and the cases of non-fatal poisoning are quite numerous. Fatal cases have been reported by Carayon,⁴ Michel,⁵ Oré,⁶ Plowright,⁷ Trask,⁸ Schröter⁹ and a number of others, and in 1884, Studer Sahli and Schärer collected the previously reported cases, to which they added several of their own, in which the nature of the fungi eaten, the symptoms during life, and the post-mortem findings were all carefully investigated. The chief symptoms were the profound prostration with cyanosis, headache, vomiting and diarrhea, and the principal lesions post-mortem were extensive ecchymoses and hemorrhages in the serous membranes and parenchymatous organs, together with profound fatty degeneration in liver and kidney.

In the literature since 1884, I have been able to find a number of fatal cases, and there are probably well over a hundred such on record.

Poisoning may occur from the consumption of a number of fungi, including *Amanita phalloides* or the "Deadly Amanita," *Amanita muscaria* or the "Fly Agaric," and certain varieties of *Boletus*, especially the ones known as *Boletus satanus* or *Boletus luridus*.

The cases of poisoning by species of *Boletus* are exceedingly rare and little is known of them. Those following the consumption of *Amanita muscaria* are practically never fatal, the symptoms here being due to the profound action upon the heart of the muscarine contained in large

¹ From the Bacteriological Laboratory, Johns Hopkins Medical School. Received for publication August 8, 1905.

to be when I first became particularly interested in the anemias; nevertheless, the condition as generally understood is a fairly definite one, and just now I feel that our tendencies are too much in the direction of the arrangement of many subdivisions and in the creation of ill-defined and indefinite classifications, which are not justified by close study of the condition, considered in the broadest light from all aspects of the disease. Too close adherence to observation of clinical forms only leads one astray through the multiplicity of the symptoms and signs of the condition. An attempt at classification or study from purely laboratory findings, without reference to history and clinical manifestations, leads one even more widely afield, hence I believe that for a correct consideration of anemia we must apply both clinical and laboratory investigations, and by a discriminating study of the total evidence, finally arrive at what may be looked upon as a fair and impartial verdict.

Perhaps it is well at this time to attempt to define in a rough sort of way what I do understand by anemia: Anemia is a condition of the blood characterized by deficiency in the total or relative amount of hemoglobin, or it may be a condition of the body resulting from an insufficient absorption from the blood of nourishment for the proper support and oxygenation of the body tissues. Accepting this imperfect definition as our basis, it appears that there are cases, and as a matter of fact we occasionally meet with them, in which no discoverable defect in the blood can be found, but in which the disease seems to be localized in the inability of the tissues to properly absorb the substances contained in the blood. Of course this definition is subject to the greatest modification and correction, for, as yet, we know but very little of the obviously important chemistry of the blood, and what we may now consider a normal blood may be deficient in the most important of chemical requisites. Study of the blood and of the patient cannot fail, however, to demonstrate in a certain number of cases the inadequacy of the usual definition, of deficiency in corpuscular elements and hemoglobin only. There can be no question but that certain individuals require less corpuscles and less hemoglobin than others of the same body-weight, just as some persons thrive best on what would be a very insufficient diet for others. The important point which I wish to make here is that we must not judge entirely of the presence or absence of anemia by the volume and condition of the blood alone, but also by the function of the tissues which are dependent on the blood for their well-being. Thus 85 per cent. of hemoglobin, with, let us say, 4,000,000 red corpuscles, may be normal for one individual in apparently perfect health, and yet another person of the same body-weight with this condition may suffer to a considerable degree from anemia.

The purpose of this paper is to direct your

careful attention to anemia as it comes under your charge, and to bespeak for these cases the same care in diagnosis and the same earnestness of treatment which you would give to, let us say, an indefinite neurological condition or to the treatment of a case of cardiac disease or typhoid fever.

For one to attempt to give this amount of study to every case of anemia in his practice would be perhaps impossible, and in my opinion much time would be wasted and taken from more valuable work; what I do wish is that you devote to those obscure and intractable cases which resist the ordinary measures of treatment this study; in other words, when you find a case manifestly suffering from hemic malnutrition, but in which little or no response to the ordinary treatment results, to these cases be given the time and considerable study which is often necessary for the proper understanding and treatment of these by no means rare conditions of anemia.

In regard to methods, it is quite obvious, in the selection of methods for study, that simplicity and quickness are desiderata of the greatest importance; and, in so far as possible, methods requiring a minimum of special technical skill are required, particularly as regards laboratory technic, for the reason that the busy practitioner who uses these methods but infrequently cannot retain the skill in the manipulation of these instruments which he probably possessed at the time of his graduation. For this reason, in my presentation and discussion of methods I shall consider only what I have found to be most reliable, most simple and in general the best available methods, which yield the most valuable results with the least expenditure of special technical skill.

As I have before stated, I insist on a combination of the methods of the laboratory and the clinic; of the two, there is no doubt in my mind but that clinical examination, though incomplete and often misleading, is the more valuable. A laboratory finding without the best of clinical study is, I may almost say, generally misleading.

In the history of the case, we should go carefully into the family history, particularly as to the existence of previous blood disorders in the family, the presence of hemophilia, of frequent epistaxis, of menorrhagia or of occupations tending to deplete the hemic state, such as lead working, conditions leading to pneumoconiosis and the like. There are families in which anemic states, particularly hemophilic and chlorotic tendencies, are undoubtedly inherited.

Occupation and personal history are to be gone into thoroughly. Mercury and lead workers, for example, may have their condition at once explained. Though lead may have long since disappeared from the urine together with all clinical manifestations of lead poisoning, yet I have known the anemia with its typical degeneration of the red corpuscles to persist for as

long as fifteen years after the acute poisoning. Habitat is to be considered with the possibility of unhygienic surroundings; hookworm infection or malaria, with their consequent anemia, which may exist without the slightest temperature variations, are all to be considered. These are but instances illustrating the great importance of a careful consideration of the personal history in every respect. Inquiry as to the habits of life, as to food, exercise and exposure to the sunlight and air; as to sleep, use of alcoholics and tobacco or other drugs; all these must be taken into account. In brief, there are no details in regard to the history of a case of anemia which may not be profitably considered in our attempt to secure a comprehensive understanding of any instance of it.

In ascertaining the symptoms complained of, I have usually found it most satisfactory first to allow the patient to state of what he complains chiefly, and the reasons for which he was led to consult a doctor. After these have been stated, each of the systems are to be gone over, questioning as to the functional ability of the various organs. Particularly, stress is properly laid on the menstrual function in women, for the reason that menorrhagia may be either a causative factor or a symptomatic manifestation of the anemia; on the other hand, amenorrhea may be the result, though, I believe, never the cause. In the symptomatology of anemia it is often difficult not to ask leading questions which may act suggestively and cause the patient unwittingly to mislead you; with most cases their own story is sufficient, with an occasional hint from the physician—this of course only with patients of intelligence. With hospital cases I often find a symptomatic history useless or wholly misleading.

The physical examination should always begin with a careful inspection of the patient, particularly of the skin and the mucous membranes of the lips, nose and mouth; nevertheless I think that there is nothing perhaps so misleading as the data sometimes secured by this inspection, and one should constantly bear in mind that though usually a pale and lusterless skin and mucous membranes is more or less characteristic of anemia, it is not invariably so. Those of you who have been thrown in contact with residents in the tropics have often noted that the pale skin, usually dark and muddy, which we see in these patients, is in nowise indicative of anemia. This lesion, which is very common in the tropics, takes place in those of temperate climes who have been in the tropics for only a short time. I have often observed it, particularly in the wives of army officers on their return from the Philippines. It is also not infrequently present in people of this climate, and I have often been surprised to find a practically normal blood condition in cases of this nature. Of course the symptoms and most of the other signs of anemia are wanting in

these instances, but it cannot be absolutely excluded except by blood examination. Reliance should never be placed on the coloration, particularly of the cheeks, since these are so prone to marked vasomotor alterations; inspection of the color of the ear is much more reliable, though also subject to the same variations. In anemia of some time standing the hair and nails show degenerative alterations, due directly to defective nutrition. As has been long noted, the amount of subcutaneous fat, particularly in the more severe primary anemias, is often not diminished, though in other instances loss of weight and emaciation are cardinal indications. Ophthalmoscopic examinations are often a matter of considerable import in the diagnosis of anemia, particularly since its findings not infrequently indicate the probable cause, as in nephritic conditions, or shows the hemorrhages so common in pernicious cases.

Palpation, particularly to ascertain as to lymphatic, hepatic or splenic enlargement should not be neglected, since one may easily mistake a leucemia for a simple anemia. History and examination as to the possible presence of new growths must always be considered. Tenderness of the bones as occurring in myeloma, rickets or osteomalacia is to be searched for and excluded. Localized or general edemas, which are frequent symptoms of anemia, are to be looked for. Examination of the lungs, considering the possibility of tuberculous, neoplastic or fibroid involvement, is also advisable.

Perhaps no one system yields more definite data than the cardiovascular organs. In anemia of severe degree we commonly find the pulse soft and compressible, and the vessels often give the impression of being incompletely filled. Bruit may be heard over the larger veins and arteries, just as anemic murmurs are heard over the heart in the same condition. The heart action is often irregular, intermittence is common and the muscle sounds are weak and without tone. On the contrary, occasionally a high tension pulse is present associated with overheart action; as a rule, in these instances I have found the renal functions also at fault. In this particular, I have found anemia so frequently dependent on kidney disease that I now make a rule to test the blood pressure and to examine carefully the urine in every anemic case. A suspicion of renal disease is often given by the sphygmomanometer while no indications of kidney disease are shown in the urine. When the anemia is of renal origin you will almost invariably find a high blood pressure, whereas, when it is unassociated with renal disease as a rule the blood pressure is low. The manipulation of the blood pressure apparatus is now so simple that it should be part of the regular equipment of every hospital and physician's office. In my experience, only two relatively inexpensive instruments are to be relied upon, the Riva-Rocci and the Janeway; the latter I

have used very extensively and with excellent results. Its operation is so simple that the blood-pressure charts in the New York City Hospital, where a great deal of this work is being done, are kept by the nurses.

In the general examination of the patient, the gastro-intestinal tract should by no means be neglected. Anemia resulting from malassimilation is one of the most frequent types, and you will all agree with me that in the treatment of the anemias so common in girls and young women in particular the relief of constipation is one of the most evident steps toward cure; the more frequently we attend carefully to the intestinal function the less commonly do we find true and idiopathic "chlorosis." Dilatation of the stomach and atrophic gastritis are common conditions as the causative factors in anemia, and oftentimes examination of the gastric contents gives us the essential clue; often, close attention addressed to this tract will discover the presence of a new growth, of pyloric stenosis with obstruction, or of some other sufficient explanatory lesion. Examination of the feces should never be neglected, since in a large and increasing number of diseases manifested by fecal findings we find anemia developing, often as a fatal process. Blood and blood pigment are found in large quantities in hemorrhages from the gut, while the ovæ of the hookworm, of the *Bothriocephalus* and even of ordinary tinea may be found and fully account for what may have been previously a most puzzling condition. Even so simple a condition as hemorrhoids is stated by Lazarus to be at times causative of anemia. Of late I have, in addition, been making a systematic examination of the feces as to the amounts of iron passing, in any particular state. Since the absolute determination of iron in the feces is a difficult and tedious matter, I have made relative tests at stated intervals with the patient, of course, on a stated and definite diet. Thus I take a measured amount of feces, digest it in a test tube with a definite amount of dilute HCl, and then by the addition of potassium ferrocyanide in definite amounts to the filtered fluid one is able to determine approximately by the density of precipitate of Prussian blue the amount of unabsorbed iron lost in the feces. This test is, of course, merely relative and very rough, but I have found it to yield very instructive results in a good many cases. Even the mere inspection of the feces is valuable, for in case blood in considerable amount is escaping from the upper intestinal tract, the dark green or black feces (due to sulphide of iron) show this to be a fact, whereas in case the blood escapes from the colon, it is much more apt to be found freshly fluid or in clots; the larger intestinal parasites may also be found in this manner.

Even examination of the central nervous organs may sometimes yield important data, thus in primary pernicious anemia degeneration

of the spinal cord, particularly of the posterior tracts, takes place, and spinal signs and symptoms like those of tabes may be found. In certain syphilitic diseases of the central nervous system extensive degenerative lesions may also be found in the blood; in lead poisoning, with its often profound and serious anemia, lead palsies may put us on the right track.

Perhaps, to be brief, we should say that in obscure cases of anemia a careful and complete examination of the entire body should be made; the more thorough and complete the examination, the less frequently will instances of primary idiopathic anemia occur, and the more commonly will you find success attending your treatment of these often obscure diseases which so commonly result from or cause anemia of severe degree.

It seems almost too much to add to the duties of the already overtaxed physician, particularly those in general practice, but I think that very few of us nowadays feel that we are prepared to enter the field of diagnosis without a certain amount of laboratory training and equipment; this is particularly desirable when we are dealing with anemia in any of its forms. Yet the necessary equipment and technical requirements are not great; a complete blood examination, sufficient for most practical purposes, can be made in from thirty minutes to an hour. Nevertheless, understanding, as I think I do, the numerous demands on the time and skill of the average physician, I have attempted to give in this brief paper a consideration of only the most important and simple laboratory methods as applied to the study of anemia.

In the first place, I consider by far the most important instrument to be used in the study of the anemias to be the hemoglobinometer. One is now no more excused in neglecting its use in cases of blood disease, particularly as a means of recording progress under treatment, than he is excused from the use of the clinical thermometer. It requires less time than is needed for the thermometer, and its findings in any anemic state are just as valuable as those of the thermometer are in the various febrile conditions. The chief objection to its frequent use can only be the primary cost of the instrument. I do not consider the use of the Talqvist filter paper test as of much value, even relatively, since its error is within 10 to 15 per cent., and its use requires fully as much technical skill as is demanded in the use of an accurate instrument. The modified Fleischl hemoglobinometer is a very accurate one, but it is cumbersome, very expensive, and out of expert hands inaccurate; furthermore, it is inconvenient to use at the bedside or outside of a well-equipped laboratory or office, and its employment takes from five to fifteen minutes. On the contrary, the instrument designed by Dr. Dare, of Philadelphia, is convenient, simple, accurate, and can be carried in the coat pocket; a test can be made

curate. I have used it faithfully as a matter of routine for over a year, but I cannot say that I consider its use of much value in the study of anemia. In diabetes, particularly just before serious symptoms intervene, the alkalinity appears to drop rapidly; in severe cases of chlorosis or pernicious anemia and also in grave secondary anemias as well it is much reduced, but you will be surprised, should you consistently employ this test, that there is so little variation shown in the great middle class of cases with which we most frequently meet.

The determination of the rate of coagulability of the blood is occasionally of considerable importance in anemia, though very rarely as a matter of routine. I have used it where the question of advisability of surgical intervention has arisen, as where surgical conditions arise in such diseases as pernicious anemia or chlorosis; and in some instances I think that I have saved the surgeon serious trouble with uncontrollable oozing. In other cases, and these more frequently, I have been able to tell him that he has nothing to fear from a lack of coagulation on the part of the blood. The old methods for this determination were inaccurate, unwieldy, and demanded the employment of a complicated and expensive instrument. The new Biffi instrument, which any of you can make in five or ten minutes, is by all odds the most accurate and the quickest to use. It will prove, I think, to be of great value to the surgeon, though not very frequently in the management of anemia. A rough but not bad test of coagulability for practical purposes can be done by making a shallow linear cut with a sharp scalpel—say on the lobe of the ear—and watching the coagulation in the drop of blood so formed; this simulates fairly well the surgical conditions, though of little value, as indicating the nature of the blood in its natural channels. A general idea of the volume of the blood is also to be obtained in this manner by close observation of the drop and its rapidity of formation.

These few manipulations, with the use of the sphygmomanometer already mentioned, comprise all that in my judgment are necessary for a practical study of the blood in the anemias. If you are concerned in research, there are, of course, other methods with which you will also acquaint yourself, but in concluding this section of my paper let me again caution you against accepting a purely laboratory diagnosis in your cases of anemia. If you do not care to do this work yourself, if you are wise and discrete, you will acquaint your laboratory man with a synopsis of the clinical aspects of the case. I am perfectly well aware that many men, and many textbooks, tell you that an absolute diagnosis of—let us say, pernicious anemia—can be made from the laboratory findings alone; this is not true, and acquaintance with the clinical aspects of the disease, with the laboratory findings and with the dead-house facts, has taught me to hold in

great suspicion the one-sided view of any one-sided man. In the study of anemia, as in all branches of medical work, we must be broad-minded, observing, critical and, above all, judicial, considering not part of the evidence, but all of it.

In the classification of the anemias, I have found it most convenient to arrange them under three heads—Primary, Secondary and Symptomatic.

Under the caption of primary anemia I include those forms which are primarily due to disease of the blood-forming organs as well as those such as chlorosis, the causative agent of which is entirely unknown.

Under secondary anemia I place those hemic conditions characterized by anemia which are directly due to some definite cause primarily affecting the blood; for example, the anemia occurring after hemorrhage, as in menorrhagia or in hemophilia. The cure in these cases is brought about simply by restitution of the normal missing elements of the blood.

It has seemed well to me to make a separate class of those anemias which arise not as a primary, nor yet as a direct secondary result, but which occur as a symptom or incident in some general process; these forms I call symptomatic anemias.

I am well aware that all these conditions can be correctly arranged under the heading of the primary or secondary, but it seems proper that we realize in this relation that the symptomatic anemias differ markedly in clinical significance, since the treatment in them must be always directed immediately to the elimination of the disease or cause productive of the condition before correction of the blood itself be attempted. Thus under symptomatic anemia I shall place the anemia occurring in nephritis, parasitic diseases, as in hookworm infection, malaria, in new growth formations and the like.

Mixed anemias are one of the most common and confusing conditions with which we contend in the diagnosis of the anemias, such a secondary condition as may take place, for example, after severe epistaxis in chlorosis, after hematuria in hemophilia or the gastric or intestinal hemorrhages so frequent in pernicious anemia. These secondary conditions so confuse the blood picture in particular that the laboratory findings are often entirely contrary to what we should expect. The clinical aspects are also seriously modified so that correct diagnosis becomes a matter of great difficulty.

These last two are certainly the most frequent types of anemia with which we meet, they are with one or two exceptions the most difficult of treatment and oftentimes the most difficult of diagnosis.

In the brief time at our disposal this evening, I shall necessarily touch on but a few types of anemia, and I shall attempt to mention the diagnostic points in but a few of the most important

and difficult conditions with which I meet most commonly. Of the primary anemias, I shall consider the diagnosis of two only, namely, pernicious anemia and chlorosis.

Pernicious Anemia.—In well-advanced cases the diagnosis of pernicious anemia, or of some of its closely simulating conditions, may almost be made from the mere inspection of the patient. The pallor is profound, and is generally accompanied by a peculiar greenish color of the skin, often with more or less puffiness. Emaciation is not the rule and in most cases the panniculus adiposus is well preserved. In the history of the case, causes sufficient to produce the obviously severe anemia are wanting, and in this respect we must not be misled by the occurrence of the by no means rare intestinal hemorrhages or by those of the other mucous tracts; these are indeed often of diagnostic significance. Great physical weakness is usually complained of, and, though in the majority of cases no mental impairment has taken place, the patient is often of a cheerful appearance and nature, and we occasionally see, particularly in the final stages, all grades of mental aberration to profound delirium with maniacal symptoms and terminal coma.

Absence of the knee-jerks, with pains like those in tabes associated with more or less ataxia, indicating degeneration of the posterior columns, may be shown and may be almost pathognomonic of pernicious anemia, which not uncommonly causes these cases to be considered as of primarily neural nature. The pulse is soft, usually rapid and the volume is small. Examination of the heart shows the common occurrence of very loud murmurs, often of such intensity and location as to cause the case to be considered one of endocarditis, and when further characterized, as occurs not infrequently, by fever often of considerable degree, the resemblance to acute malignant endocarditis is often very confusing and the distinction may rest entirely on the blood examination. Further, the heart muscle sounds give rise to the diagnosis of a myocarditis, which is an almost constant anatomical finding in pernicious anemia. Hemorrhagic retinitis is often present, and hemorrhage in any of the mucous surfaces is very apt to be found. All these manifestations may be also seen in cases of severe secondary or symptomatic anemia, and the exclusion of these possibilities must rest entirely on the negative findings of a sufficient cause in the true primary anemia; this necessitates a most thorough consideration of all aspects of the case.

The blood in pernicious anemia is characterized by its light color, and in clotting, which takes place slowly and is often incomplete, the corpuscles separate into little masses between which trickle small yellow streams of serum, all of which can be made out with the unaided eye. The number of the red cells is greatly reduced; this is one of the cardinal signs of the disease,

and the size of the red corpuscles is increased. Small red cells, or even normally sized red cells, often are in minority in marked cases. The relative amount of hemoglobin in each individual red cell is much increased, although on account of the reduction of the number of red blood cells, the total percentage of hemoglobin is markedly diminished. Megaloblasts or nucleated large red cells are present in nearly all instances, though undoubted cases are on record in which they were entirely absent. Their presence is considered as more or less pathognomonic of the disease, although they are also found in certain of the more severe symptomatic anemias. Normal-sized nucleated red cells, normoblasts, are present in most cases, particularly just before the remissions which sometimes characterize the disease.

Briefly, the blood findings may be said to simulate those of an embryonic blood, and to be characterized by decrease in number, large size and high hemoglobin index of the red cells, with the presence in most cases of megaloblasts, all characteristic, not of abnormal blood destruction, but of a deficient blood formation.

(To be Continued.)

THE DIFFERENT CONDITIONS IN TUBERCULOUS KIDNEY AND THEIR TREATMENT.¹

BY CHARLES L. GIBSON, M.D.,

OF NEW YORK;

ATTENDING SURGEON, ST. LUKE'S HOSPITAL.

THE lesions of tuberculosis of the kidney, as seen in surgical practice, vary considerably according to the stage of the disease. Practically they may be divided as follows: (a) A limited focus on the kidney substance proper; (b) multiple foci which may become confluent, pyonephrosis; (c) complicating lesions of the pelvis and ureter; (d) involvement by extension of the surrounding tissues,—tuberculous perinephritic abscess.

These lesions may be confined to one kidney; more frequently both are affected, not necessarily to the same extent. There are usually other lesions, latent or active, in other parts of the body. Sooner or later implication of the remainder or some portion of the genito-urinary tract is the rule. Treatment may be: Curative, nephrectomy. Palliative, directed toward the relief of individual or urgent symptoms.

Tuberculosis of the kidney being usually only a part of a tuberculosis with multiple lesions and generally affecting both kidneys, it is obvious that the application of radical measures must be limited. On the other hand, it is worth trying for, as other forms of surgical treatment yield meager results and frequently do harm.

Radical operation is practically limited to tuberculosis of one kidney and quiescent or no obvious general lesions. Advanced destructive process, even if limited to one kidney, will prob-

¹ Read before the section on Genito-Urinary Diseases of the Academy of Medicine, May 17, 1905.

ably have determined secondary vesical and other lesions. As we are limited in our choice of cases suitable for operation, we should all the more carefully study the symptoms which may enable us to diagnose the condition in its earlier stages.

The original focus, which is usually a tuberculous infection elsewhere, may progress very slowly and insidiously, giving practically no direct symptoms. An important factor to be borne in mind is the diathesis, and if the patient is of the tuberculous type we should always give this feature an important place, so long as another condition is not proved.

In almost all cases there develops even early a reactive chronic diffuse nephritis, evidenced by increased secretion of urine and more frequent urination, slight traces of albumin, lowered specific gravity and occasional casts pointing to a definite renal lesion. This chain of symptoms is not given the importance it deserves in the recognition of early cases.

Another early factor, which may be of importance in the absence of other definite symptoms, is a consistent and persistent evening rise of temperature, particularly if it is taken by rectum or vagina. Pain, hematuria and pyuria with acid urine, are of course more pathognomonic; but they also occur in other conditions, especially in renal calculus with which tuberculosis is most likely to be confounded. A later symptom will be an enlargement in the lumbar region. If due to enlargement of the kidney proper the tumor retains the characteristic kidney outline, if due to a pyelitis it is more globular; it may be characteristic of a perinephritic abscess. Tubercle bacilli may or not be found at any stage. The cystoscope may help by presenting a definite appearance of the ureter mouth, positive or negative, on one or both sides. The diagnosis is made from one or more of these elements, depending on the stage of the disease.

With regard to localization of the disease, localized pain and a palpable enlargement of the kidney or a tumefaction on the flank will direct our attention either to one side alone or to one side more than the other. Further information may or may not be furnished by ureteral cystoscopy or the examination of the separate urines. In the absence of definite symptoms, all ordinary means of investigation having been exhausted, we are justified in making a negative diagnosis as regards the other kidney. It is a human impossibility to establish the condition of the second kidney with certainty, and our estimates must always allow of some leeway.

Generally speaking, if there are marked evidences of a severe process in one kidney and the patient remains in good general condition, it is a fair presumption that the other kidney is in good working order, especially if the daily output of urea is well maintained.

In doubtful cases I practice and strongly recommend direct palpation or examination of the

other kidney. It is best done by using for the exposure of the certainly diseased kidney the long transverse incision. By opening the peritoneum at the mesial end away from the site of manipulation of the diseased kidney sufficient palpation of the second kidney is easily made.

It will be immediately objected that mere surface palpation can reveal little about pathological processes in the interior and still less of the functional ability. This view is erroneous up to a certain point. A kidney that is sufficiently tuberculous markedly to interfere with its function will ordinarily present modifications of its contour, and, what is more important, a considerable degree of fixation to surrounding structures. Moreover, its pelvis will also show a recognizable thickening or enlargement. So if the kidney is found to be smooth, movable, and the pelvis normal, in the absence of more definite data, I do not hesitate to consider it as sound, or sufficiently so for our purposes.

As another advantage of early diagnosis and early operation we may not be compelled to do a complete nephrectomy, resection of the limited affected portion being sometimes feasible. I believe that the greatest advance hereafter in the treatment of tuberculous kidney will be along this line, particularly as it offers a possibility of operating if necessary on both kidneys.

The outlook for operative treatment of tuberculosis other than radical, that is, primary nephrectomy, is very discouraging. Many inexperienced operators, and some who should know better, drain the tuberculous kidney with a marked pyelitis or a complicating perinephritic abscess in the erroneous belief that the apparently insurmountable obstacle to a primary nephrectomy will be favorably influenced by drainage; whereas this drainage does not in any way improve the underlying disease and therefore cannot be expected to reduce the adhesions due to the original process. Furthermore, it opens up new avenues for infection and aggravates thereby the obstacles to a later nephrectomy.

For the cases in which primary nephrectomy is contra-indicated there will be but exceptionally a compromise, *i.e.*, nephrostomy. We do not expect to cure tuberculous abscesses in other tissues by drainage alone, and the kidney presents no conditions which make it an exception to this rule. Nephrostomy means a permanent tuberculous sinus, plus escape of more or less urine, a condition of which the drawbacks and discomfort need not be emphasized. If, however, there is unbearable pain due to pressure, or very marked fever, it may very rarely be wise to relieve these symptoms, even at the expense of the drawbacks just stated.

The perinephritic abscess may be repeatedly evacuated by aspiration to relieve pressure; it may also be treated with injections of iodoform emulsion though with little prospect of cure.

For these advanced or general lesions there is,

then, little or nothing to be expected from surgical treatment. Constitutional treatment, more particularly in younger subjects, may oppose some resistance to the progress of the disease; very exceptionally it may cause it to become latent; but the severe and multiple lesions mean a condition the hopelessness of which we should appreciate and not aggravate by injudicious interference.

THE BACTERIAL TREATMENT OF SEWAGE AND ITS ADAPTABILITY TO SMALL COMMUNITIES.¹

BY R. F. PALMER, M.D.,
OF ROOSEVELT, ARIZONA.

THE ultimate disposal of sewage is always a momentous question with every community. How it can be accomplished safely, and with the least possible cost, must be decided by each community. According to Munson, "The bacterial treatment of sewage has recently assumed importance as a simple, practical, efficient and economical means of sewage purification. It depends upon the fact that there exist in nature certain non-pathogenic micro-organisms, broadly divided into those which are aerobic and those of an anaerobic nature, whose function in life, under the conditions that their names imply, is to convert the solid portions of animal excreta and organic matter into gaseous and liquid forms by a process analogous to digestion. These little workers, known as nitrifying bacteria, live in water and moist earth—and are to be found everywhere on the earth's surface; they live and multiply under proper environment, and, while doing their life work, increase in numbers and strength. Under most favorable conditions they will multiply to such an extent that to trace the descendants of a single germ for a few days would lose one in a mass of figures past human comprehension. Cohn writes as follows: "Let us assume that a microbe divides into two within an hour, these two into four in two hours, and these into eight in three hours, and so on; the number of microbes thus produced in twenty-four hours would exceed sixteen and one-half millions. At the end of twenty-four hours these microbes descended from a single individual would occupy one-fortieth of a hollow cube with edges one-twenty-fifth of an inch long, but at the end of the following day would fill a space of 27 cubic inches, and in less than five days, their volume would equal that of the entire ocean." These figures, of course, do not take into consideration the death rate of these organisms, yet they serve to indicate the immense force at our disposal for the ultimate destruction of waste organic matter.

Bacteria, functionally, are of two classes, pathogenic and non-pathogenic. It is with the non-pathogenic varieties we are at present concerned, and they may be further classified as

aerobic and anaerobic. The anaerobes live and perform their functions in the absence of an appreciable quantity of oxygen; their life-work concerns the false fermentation of proteids, breaking them up into simpler bodies with the production of evil smelling compounds, the so-called "putrid decomposition." The aerobes, on the other hand, require an excess of atmospheric oxygen, and cause the oxidation and hence purification of all oxidizable material. A preliminary anaerobic action, by breaking up and liquefying solid organic material, greatly facilitates the aerobic action. It has even been claimed that this preliminary putrefaction was necessary for the complete destruction of proteids, though it is not unreasonable to assume that, with sufficient time, the aerobes would be able to complete the process unassisted.

We have, then, living agents, capable of increasing rapidly under favorable conditions, and further capable of changing dead animal and vegetable matter into oxidizable compounds. Our endeavor should be not to destroy these agents of nature, through chemical or other means, but to conserve their energies by placing our refuse matter under conditions favorable to bacterial activity.

In considering the ultimate disposal of sewage we are dealing with a substance always complex and variable in composition, consisting as it does of solid and liquid excreta from the human body, and waste water from the kitchen, laundry, and bath room. Sewage may also contain refuse from factories of various kinds, and drainage from polluted soils. The substances to be destroyed, however, are of either an animal or a vegetable nature. Although vegetable matters are, as a rule, more refractory than animal, the end products are the same. All of these substances contain oxygen, carbon, and hydrogen, in varying proportions, and many of them contain nitrogen. Whether the sewage be emptied into a stream, on land, or on artificial beds, the means of its final disposition is the same. Through the action of these saprophytic bacteria the hydrogen and oxygen recombine to form water and the carbon becomes carbon dioxide; nitrogenous matter is broken down and, combining with oxygen and alkaline bases, forms ammonia, nitrates and nitrites. Sewage at all times contains myriads of these bacteria, as well as germs of intestinal origin, and at times the specific germs of certain diseases.

The usual method of disposing of water-carried sewage is to empty it into a stream or a large body of water, and, as a rule, this is satisfactory to the community producing the sewage. On entering a large body of water sewage becomes greatly and rapidly diluted, the organic particles are eagerly seized upon and broken up by the omnipresent germs, and the inorganic matter gradually becomes separated and settles to the bottom. Thus, in course of time, the stream purifies itself. In the land treatment of

¹ Read before the Arizona Medical Association, June 1, 1905.

sewage the same general principles apply, although the forces are under better control. Land may be used either as a sewage-farm, or as intermittent downward filtration. In the case of farms the sewage is discharged either upon, or into, a suitable soil. It is desirable that sewage should flow on to the farm by gravity, and arrangements must be made to so control the flow of sewage that it will be intermittent, in order frequently to give the soil a fresh supply of oxygen. The soil acts as a filter, straining out the solids, and the large surface of liquid exposed is rapidly oxidized; vegetables growing in the soil utilize the products of oxidation, and, as a rule, grow luxuriantly. The sale of these products will, in part at least, pay the expenses of conducting the farm. There appears to be no danger of disease from eating vegetables grown on these farms, and attendants living on them are as healthy as under other circumstances.

With intermittent downward filtration the same general principles are involved. Specially suitable porous ground is chosen and the sewage is run on to it intermittently, and drained off from below. While vegetation is not interdicted, it is of secondary consideration, and from eight to ten times as much sewage can be purified per given area as with the farm treatment. Thus, according to Munsen, an acre of ground prepared for intermittent downward filtration will effectually purify the sewage from 2,000 people, whereas, with a farm, from eight to ten acres would be required. The effluent from land treatment of either description is said to be clear and free from odor; it will support the life of fish and is a safe drinking water.

Of the strictly artificial methods for the bacterial treatment of sewage we have: (1) Single and double contact beds, or intermittent filters; (2) continuous or trickling filters, and (3) septic or precipitation tanks.

These methods may be used alone or in various combinations to meet local requirements.

Treatment by contact or bacteria beds is equivalent to land treatment with the advantage of a greatly lessened area required, and hence a greatly reduced cost. It has a further advantage in that the conditions for bacterial growth are under better control.

A contact bed is a reservoir of suitable size and depth, which is filled with a porous material, and so arranged that the sewage can be run on to the bed until the fluid reaches the surface of the filtering material. The sewage remains in the bed for two hours and is then drawn off at the bottom. The bed is now given a rest of two hours during which time it will again become aerated and be ready for another charge of sewage. The best results with this form of treatment have been obtained by passing the sewage through a settling tank to remove the inorganic solids and to break up the coarser organic particles, then on to a coarse coke bacteria bed, and finally on to a fine coke or a coarse

sand bed. This effluent will contain a high percentage of nitrates and nitrites, and, if desirable, may be used upon land.

In continuous filtration, either the settled or screened crude sewage, or the effluent from a septic tank, is distributed in thin sheets or drops equally over the surface of the filter. These filters should be so constructed that the sides and bottoms are well aerated. The filtering material should be hard so that it will not crumble and choke the filter. The pieces should go between two and three inches in diameter, and irregular in fracture, so as to give the largest possible surface for aeration. As the fluid drips from one piece to another there is a constant replenishing of oxygen. According to the Leeds experiments it has been found practicable for long periods to work coarse continuous filters at the rate of 200 gallons per square yard per day, for septic effluent. At this rate results giving over 90 per cent. purification are obtained, while with the same area 1,000 gallons per day can be purified sufficiently to meet ordinary requirements, and 10,000 gallons per day will not choke the filter. With crude sewage a greater area would be required.

In all of these methods there has been considerable difficulty experienced with both inorganic and organic solids. Screening would remove the coarser particles, but sand and grit, with solid organic matter, would gradually accumulate and eventually choke the filter, causing expense and delay in its removal. To overcome this difficulty McDonald Cameron, of Exeter, experimented with a preliminary anaerobic treatment in closed tanks. This treatment gives rise to a putrefactive action, and has been called the septic tank system. By this means practically all of the suspended inorganic matter is retained in a settling tank, and 25 to 40 per cent. of the organic solids is liquefied or given off in the form of gas. The effluent from these tanks, however, is far from pure and requires further treatment with contact beds, filters or land. The following general observations on septic tanks are taken from Dibdin's "Purification of Sewage and Water." "When a septic tank is first started a simple disposition of the suspended matter occurs, the effluent obtained being in reality only settled sewage. Soon, however, a fermentation of the deposited solids takes place, and a large volume of gaseous products is evolved. The period elapsing between the starting of the tanks and the occurrence of the phenomenon varies with the weather, being shortest in summer. This evolution of gas gradually increases until sufficient has accumulated in the deposit to raise large portions of the latter to the surface of the liquid, where part of them remain supported. Other parts will settle to the bottom, to be again raised by the constantly forming gas. Thus a constant movement is kept up, until much of the solid organic matter is reduced to liquid and gaseous states. The min-

eral and inorganic solids gradually separate and settle to the bottom of the tank. While these changes have been taking place in the contents of the tank, the character of the effluent has also altered. The first flow does not differ from settled sewage, but, as the putrefaction of the sediment proceeds, the effluent becomes darker and almost black, and somewhat offensive, owing to the solution of some of the products of bacterial action and the production of sulphides of iron."

Disposing of sewage by bacterial treatment practically eliminates all danger of contaminating the subsoil, and, by running a pure effluent into our streams and lakes we will keep the waters vastly more fit for use. More than that, it has been shown that such effluents containing, as they do, great numbers of nitrifying bacteria will considerably improve an already polluted stream. The effect of this process on active disease germs, and especially those of enteric fever, has not been thoroughly demonstrated, and in time of epidemic it would be well to further treat the final effluent by chemical means.

The particular method to be used will vary with the locality, the amount and composition of the sewage, and the means at hand. Carried out on a small scale the initial cost is very small, and the cost of maintenance is practically nothing. According to Dibdin the consensus of opinion at the present time is in favor of detritus or septic tanks followed by either: (1) Single contact beds and land, or double contact beds where suitable land is not available; (2) continuous filtration, or (3) when the best possible effluent is required, double contact beds and suitable land, or fine sand beds.

The system now in operation at the Geological Survey Camp at Roosevelt consists of a septic tank, followed by a continuous trickling filter. Approximately 3,000 gallons of sewage passes through the tank and filter in twenty-four hours. The tank is of concrete floor and sides with a board roof covered with earth. It is forty feet long, eight feet wide, and three feet deep, and divided into three compartments by two walls. It has a capacity of about 3,600 gallons, so that the sewage remains in the tank between twenty-four and thirty hours. The inlet to the first compartment is by a 6-inch pipe, connected with the main sewer, one foot below the surface of the fluid when the tank is full. This compartment is the grit chamber and measures 5 x 8 feet and is six feet in depth. From here the sewage passes through an opening in the dividing wall one foot beneath the surface into the septic chamber 8 x 30 feet and three feet deep. In this compartment are a number of partitions extending alternately from either side of the tank and extending nearly across.

These partitions retard the flow of sewage and permit of greater fermentation. The sewage now passes through another opening one foot from the surface into a small compartment, from

which the effluent overflows at the top into a 4-inch iron pipe, and is conducted by it to the distributor. The distributor consists of a box four inches square and three feet long, with eight cross sticks passing through. These cross sticks are grooved on top, and, as the effluent rises in the box to the level of the grooves, it passes out and flows over the sides of the cross sticks and drips on the surface of the filter. The filter is a wood frame one yard square and ten feet high, placed on a slanting concrete floor. The sides of the frame are latticed so as to give plenty of air. The filling material is of small boulders between two and three inches in diameter. On the floor is a collecting drain which leads by a short outflow pipe to the power canal. This system has been in operation but a short time, and it is too early to draw conclusions from it. From present appearances, however, it will prove entirely satisfactory. It is my intention to make a report at our next meeting on this system, also on the one to be operated at the camp of J. M. O'Rourke & Company, contractors, who will build the Roosevelt dam.

A STUDY OF THE RESULTS OF ABDOMINAL HYSTERECTOMY FOR FIBROIDS OF THE UTERUS, WITH AND WITHOUT DRAINAGE.

BY JOSEPH BRETTAUER, M.D.,
OF NEW YORK.

THIS study was undertaken with a view toward ascertaining the difference in the immediate results of abdominal hysterectomy, or rather in supravaginal amputation for fibroids of the uterus, upon the comfort, rapidity of convalescence, and general condition of the patient, in those cases in which drainage through the vagina was instituted, and in those in which it was omitted. The cases included are those which have been operated upon in my service at the Mt. Sinai Hospital, covering a period of two years, from December 1, 1902, to December 1, 1904. There are in all 54 cases. There was no mortality, complications of an inflammatory or other character were very few, and, generally speaking, the total results could hardly be improved upon. It may be well to state that no differentiation has been made between the cases operated upon in the old hospital, where the facilities were far inferior to those in use in the present hospital, which came into clinical use on March 26, 1904. Of the 54 operations, 32 were performed with gauze drainage through the cervix, and 22 without.

For the thorough appreciation of any set of statistics referring to operations, the technics of the operator are an essential; I shall therefore briefly describe my mode of procedure in a typical case of abdominal hysterectomy. This does not differ materially from that of other operators, except in a few unimportant details; the

length of the abdominal incision is regulated by the size of the tumor; very little time is taken up in preliminary hemostasis; the ovarian artery and round ligament on both sides are ligated with silk, and the bladder peeled off from the anterior surface of the uterus. A small posterior flap of peritoneum is then dissected from the cervix at about the height of the insertion of the sacro-uterine ligament, the uterine arteries are ligated with silk, and the uterus amputated in such a way as to leave a crater-like cervical stump. When drainage was practised a piece of iodoform gauze was now put through the cervix, the upper end left long enough to cover the cervical stump, with the idea that it should act more as a compression for the slight oozing, than as actual drainage; the anterior and posterior peritoneal flaps are then united by a running catgut suture, starting at the ligature over the ovarian artery, so as to invert both this ligature and the round ligament, leaving no raw surface or free pedicle within the abdominal cavity. When drainage is not resorted to, the cervical stump is closed with a running catgut suture, and the peritoneal flaps united as in the other cases. After removing the appendix a running catgut suture closes the parietal peritoneum, interrupted silk sutures unite the fascia, and the skin is either sewed by a running suture, strapped, or united with Michel's clamps, dependent upon the amount of adipose tissue in the abdominal wall.

It is well to say at the outset that the immediate results of abdominal hysterectomy by all operators are satisfactory in the main; the mortality is not high in uncomplicated cases, and the convalescence undisturbed; to substantiate this, I will refer only to the large statistics of Winter,¹ who has collected 689 cases of supravaginal amputation with a mortality of 32, or 4.06 per cent. His table includes 105 operations by Henricius, with 2 deaths, 118 by Hofmeier, with 5 deaths, 122 by v. Rosthorn, with a mortality of 4; 77 by Wyder, with 6 deaths, 100 by Olshausen, with 6 deaths, and 167 by himself, with a mortality of 9.

Pulse.—The study of the pulse-rate for the first five days after operation furnishes us with the interesting fact that the heart's action is practically the same in both sets of cases. In drained cases the average low pulse is 85, the average high pulse is 97, and the average for five days after operation, 91; in undrained cases the average low pulse is 88, the average high pulse is 99, while the general average for the first five days is 93. In neither series of cases could any particular course be made out, the morning pulse often being higher than the evening. The highest pulse rate was observed during the first forty-eight hours after operation. Comparing the two figures, we are justified in concluding that drainage as employed by us, or its absence, does not perceptibly affect the heart's

action; as the pulse affords the most reliable index to the course of convalescence, this is undoubtedly a most important consideration.

Temperature.—The temperature charts show an average high temperature of 100.8° F., an average low temperature of 99.8° and an average temperature for five days after operation of 100.3° F.; the temperatures being identical for both sets of cases. The highest temperatures in all cases were registered within forty-eight hours after operation, this being due to absorption, or possibly to imperfect hemostasis. A fact worthy of mention is that we have invariably noted a rise in temperature of from two to three degrees within forty-eight hours after operation.

As far, then as pulse and temperature, the two great criteria for judging the patient's condition are concerned, we find that the results are practically the same, whether drainage is employed or not.

Gastric Disturbances.—In all cases the combined anesthesia or nitrous oxide¹ and ether was employed. A certain amount of nausea and vomiting, due entirely to the anesthesia, is the rule for the first twenty-four hours after operation, and will not be considered further. If nausea and vomiting persist for days, they are certainly due to the operative procedure; to the manipulation of the pelvic organs and intestines, and to the breaking up of adhesions, etc. We find that of the drained cases, 72.4 per cent. were not nauseated at all, whereas 14.5 per cent. were noticeably affected; 61 per cent. did not vomit at all, whereas 29 per cent. vomited very severely; one patient vomited so excessively for six days that a serious complication resulted, which will be described later. Of the undrained cases, 41 per cent. were not nauseated at all, whereas 18 per cent. were nauseated to such an extent that great distress was experienced; 1 was nauseated for eight days. Three patients did not vomit at all, and 6 vomited excessively. The drained cases certainly appear to advantage in these important factors in the comfort of the patient. There were 20 free from nausea, and 19 free from vomiting, while we find among the undrained cases only 9 free from nausea, and 3 free from vomiting; prolonged nausea and vomiting were also more frequent in the undrained cases.

While it is true that individual idiosyncrasies exist among patients as regards their reaction after operations, it would appear, nevertheless, that patients in whom the supravaginal stump was drained with gauze, enjoy more gastric comfort than those in whom this method was not resorted to.

Intestinal Reaction.—A very important factor in the comfort of patients after abdominal section, is the abdominal distention due to the accumulation of gas in the intestines. In the majority of uncomplicated cases of fibroid, Tren-

¹ Zeit. f. Geb. u. Gynäk. Vol. 52.

¹ The records as to nausea and vomiting are somewhat imperfect.

delenburg's position is employed immediately after opening the abdominal cavity; this causes the intestines to recede into the upper half of the peritoneal cavity, where they are covered with moist pads, and do not receive any insult further than exposure to the air; on this account severe symptoms due to extreme distention are naturally very rare. Reviewing the history charts, we find that among the drained cases there were 7 with no distention whatever, 13 moderately, and 12 considerably distended; however, only 2 patients were greatly distressed by this symptom. Of the undrained cases, 3 had no meteorism, 8 were slightly distended, and 11 distended to a considerable degree. It is evident that as far as postoperative distention is concerned, it makes little difference whether drainage is employed or not. For relief of the distention, we resorted to the use of the rectal tube, low and high enemata, and in a few cases calomel and salines. Forty per cent. of the drained cases, and 40.8 per cent. of the undrained cases had their bowels moved by low enema on the third day; in only 9 cases of the drained, and 8 of the undrained, was it found necessary to resort to this procedure for the relief of abdominal distention, before the third day.

In general the principles which I have repeatedly expressed¹ in regard to moving the bowels were strictly adhered to, and no difference in any respect was found between the two classes of cases.

Pain.—In all cases of both series, there was a moderate amount of pain present, due to the operative procedure. Small doses of Magendie's solution, given at frequent intervals, relieved the pain in all instances; this medication was invariably discarded after the second day.

Catheterization.—One might expect that the period during which catheterization was necessary would be of longer duration in those cases in which gauze was employed for drainage; this, however, is not borne out by the facts; if there is any difference, we find it in favor of the drained cases. It is shown that the average length of time in which catheterization was necessary, was 1.3 days in the undrained, and 1.5 days in the drained cases, a difference hardly worthy of consideration. Only one patient urinated voluntarily of the drained cases, and two of the undrained; no cystitis developed in either series. It is evident that in respect to catheterization, both series are almost equal.

Convalescence.—Primary union resulted in the great majority of cases in both series. In all drained cases, after the removal of the pelvic gauze, there was a vaginal discharge with more or less odor, necessitating the employment of irrigations, which were never necessary in the undrained cases. This discharge was profuse, lasting sometimes for weeks.

Of the undrained cases the average length of time in bed was twenty days for 19 patients (the records of the exact time are not complete), the longest time was thirty-eight days for one patient, in whom the fascial sutures tore through on account of excessive vomiting, and the shortest stay was fourteen days. Among the drained cases the average time in bed was seventeen and one-half days, the longest period was thirty days, and the shortest, eleven days; these figures, however, are of no import, as, firstly, the records are incomplete, and secondly, one patient's complications necessitated such a prolonged stay in bed that the figures were materially influenced.

Complications.—Although in the main the convalescence from the operations was smooth, a number of patients developed complications which in some instances gave rise to pain and distress, and in others ran a prolonged course which kept them in bed longer than was the usual rule. Among the drained cases there were two cases of wound infection, one in which silk, and one exceptional case in which silkworm gut had been used to close the skin wound. Both cases showed the *Staphylococcus aureus* on culture. In a third case, a hematoma developed under the skin, which had been closed by clamps. The hematoma did not become infected, and the wound healed promptly after evacuating the blood. In only one instance was the whole wound infected, the others being sharply localized. All of these cases ran a low temperature for from six to nine days. In the undrained set of cases, there were five instances of wound disturbance. Two of the wounds became infected with the *Staphylococcus aureus*, one of the patients running a temperature between 100.5° and 101.5° F. for nineteen days. In one case the entire wound, though not infected, tore open to the fascia (this had been sutured with silk). In another the upper angle of the fascia separated, giving rise to a prolapse of omentum. This was repaired immediately on its discovery, and the skin wound, which was small, healed by granulation. In still another case the fascial sutures were torn through on account of excessive vomiting, with a prolapse of the intestine.

Among the drained cases, one patient with a chronic myocarditis developed an embolic process in the left pleura, the exact nature of which was not determined. She had a temperature varying from 99° to 102° F. for ten days, during five of which she vomited constantly; she was discharged cured. On the twelfth and thirteenth days one patient vomited without assignable cause. Another patient had frequent urination for two weeks, but there was no cystitis. One patient developed a bronchopneumonia of ether origin, which lasted for ten days, and another had a severe bronchitis for a week, also probably due to the anesthetic.

Among the undrained cases, there was one patient who had frequent urination for two weeks

¹ "The Question of Early Catharsis after Celiotomy." By the Author. N. Y. Journal of Gynecology and Obstetrics, 1894.

without the development of a cystitis. Another had a curious edema of the labia majora which lasted for three days, and disappeared as rapidly as it had come. Another had a severe erythema toxicum for four days, and still another had a superficial burn of the abdomen of unascertainable origin. The pelvis gave rise to few disturbances. In the drained set of cases, one patient developed an exudate on the left side, with a temperature of 102.2° F., which gradually reached normal in seven days. At the time of discharge the exudate could scarcely be felt, and gave no pain or discomfort. Another patient had a retroperitoneal hematoma which became infected and gave rise to a temperature of 104.8° F., with a correspondingly rapid pulse. This was relieved by posterior section, and the patient left the hospital well. Among the undrained cases one patient had a small stump exudate, which disappeared before she left the hospital. Another developed an exudate on the right side, with a temperature of 101° F., lasting for five days; this exudate, too, had almost disappeared when the patient was discharged.

Deaths.—There were no deaths among the 54 cases.

In conclusion, I wish to say that from the observations made in these two series of cases, generally speaking, there is not the slightest difference in the immediate postoperative course, whether drainage is practised or not. Before starting these two series, I always employed drainage, more for the purpose of controlling the small amount of oozing, than for actual drainage; during this time a few instances occurred where a retroperitoneal hematoma formed and became infected after the removal of the gauze from the cervix. This complication, though not of any serious consequence, was always unpleasant; to-day, therefore, it appears preferable to me to sew up the stump in all cases, so as to assure a more perfect hemostasis.

1063 Madison Avenue.

MEDICAL PROGRESS.

MEDICINE.

Cardiac Neurosis; The Necessity of Its Proper Diagnosis.—G. L. DAVIDSON (*St. Louis Med. Rev.*, September 9, 1905), in considering the various cardiac conditions which are purely of nervous origin and which are not associated with any definite pathological lesion, gives among the many causes acting through the nervous system in producing these functional cardiac symptoms, the following: Blood changes such as anemia, uremia, rheumatism, the puerperal state and various toxins; the many disorders of digestion, such as hyperacidity, overeating, dilatation and distention of the stomach, cancer of the stomach or liver, constipation or flatulence, which are very frequent causes; the various diseases of the uterus and its appendages, hysteria, excessive use of alcohol, tea, coffee or tobacco, convalescence from acute febrile diseases, loss of sleep, continued mental strain, excessive physical exercise; and, in fact, any disease of any organ in the body which exercises

a depressing or exciting influence upon the nervous system may give rise to a functional disorder of the heart, so closely resembling a true organic lesion as to mislead us and eclipse the real trouble. The varieties of functional disorder the author mentions as follows: (1) Those affecting the force of cardiac action; (a) overaction, which would indicate hypertrophy; (b) feeble action, simulating fatty degeneration. (2) Those relating to rhythm, such as the intermittent, the irregular, or palpitation. (3) Those affecting the sounds of the heart, such as feebleness, or accentuation of either the first or second sound, or a muffled sound blending the two into only one sound (as sometimes in effusion into the pericardium), and murmurs of various kinds over any part of the cardiac region, either systolic or diastolic (often encountered in disorders of the blood such as anemia, chlorosis, rheumatism, uremia, etc.), and often mistaken for true valvular lesions. (4) Relating to frequency, as the infrequent (bradycardia) or the unusually frequent (tachycardia), which may lead us to suspect an organic disease of the nerve ganglia of the heart, or some nerve lesion of central origin.

Abdominal Crises Caused by Meckel's Diverticulum.—M. F. PORTER (*Journal A. M. A.*, September 23) calls attention to the accidents that may be caused by the presence of a Meckel's diverticulum, an anomaly that probably exists in 1 or 2 per cent. of all individuals. He has collected altogether 184 cases of abdominal accidents from this cause, of which he gives brief abstracts, including 35 not heretofore published. Intestinal obstruction by band occurred in 101 cases, volvulus in 8 cases, intussusception in 20, diverticulitis in 17, prolapse of the bowel through a patent diverticulum in 2; typhoid perforation in 5, traumatic perforation in 1 and tuberculous ulceration in 2 cases. In the 21 cases of hernia reported in the paper the diverticulum was the cause of the trouble in all but one; in that one it was simply noted as forming the content of the sac. The average age of the patients was twenty-one years and two months, but the list includes six over fifty years, one patient being eighty-one years of age. In 5 cases the diverticulum was patent at the umbilicus. Symptoms of acute obstruction were manifest from the start in 118 cases, and incomplete obstructions were present throughout in 7. In 17 cases there had been attacks of incomplete obstruction prior to the final acute attack. In 20 cases the symptoms were those of general or circumscribed peritonitis. Appendicitis was diagnosed in many cases, and was a complication in one. The proportion of males to females was 3 to 1, suggesting trauma as an important cause. The total mortality was 60 per cent., and of those operated on 50 per cent. Except in cases patulous at the umbilicus, there are no distinctive symptoms pointing to the diverticulum, and in only one of the cases was it diagnosed prior to operation. In conclusion, Porter urges the removal of all diverticula met with in abdominal operations, whether the cause of trouble or not, provided the exigencies of the case in hand do not contraindicate further operative procedure.

Vomiting with Acetonemia (Cyclic Vomiting) in Children.—C. MIRAILLE (*Gaz. Médicale de Nantes*, No. 19), in writing on the above subject, concludes as follows: "We must not forget the prognosis as regards the maturer age of the patient. These children are really cases for future arthritic trouble, a prey to all the complication of the acid diathesis.

We are not sure where the production of the acetone takes place, or what is the exact rôle it plays in this morbid state. It seems probable that its production has some relation with hepatic insufficiency. Above all, it is to be noticed that acetone by itself is but slightly toxic; it cannot be the cause of the attacks. It is like the attacks themselves, a manifestation of an inoxidation more profound, an intoxication due to a cause and of a nature unknown, according to Marfo; an acid intoxication according to Czerny. Acetonemia, considered by itself, has not, then, any precise signification, but is the index of a nutritional disturbance which can take place under different conditions. Acetonemia is met with in widely different conditions whenever the toxins of albuminoid disintegration, manufactured in too great a quantity, find the liver unequal to the work.

Drugs and the Diazo Reaction.—Incited by a statement in the medical press that certain drugs will cause a positive reaction to the usual diazo test, W. W. GOLDEN (*Journal A. M. A.*, September 23) reports the results of a series of experiments made with these drugs on patients with normal urinary reaction. While the observations are not numerous, he thinks that, so far as they go, they most emphatically disprove the reiterated assertion that salol, thymol, sodium sulphocarbolate and guaiacol carbonate have the power of producing the diazo reaction in the urine of persons taking these drugs. He also made two experiments to test the persistency of this reaction in urine after long standing, with or without the addition of preservatives. Two samples of typhoid urine, one with the addition of 2 c.c. of chloroform and one without, were allowed to stand for periods, respectively, of one week and forty-eight hours, and the reaction was found unimpaired.

Thyroid Disease in California.—H. C. MOFFITT (*Journal A. M. A.*, September 16) writes interestingly on thyroid disease in California. Observation has convinced him that thyroid disease is more common in San Francisco than in many other cities, and he has studied the subject by correspondence with other physicians throughout the State. Goiter is more common, especially about San Francisco Bay, and less frequent in the southern part of the State and in the mountains, and is endemic in certain portions of the northern section. Myxedema seems to be more frequent in San Francisco, perhaps because more patients drift there. He has reports of 53 cases in that city and 33 throughout the State, excluding *formes frustes*, of which he has notes of 11 cases. These are characterized by dry skin, scaling of the scalp, thinning of the eyebrows and loss of hair from the neck and in the axillæ, pains in the knees and ankles and between the shoulders, and fat pads about the upper back and clavicle are characteristic. Of sporadic cretinism, he has collected 61 cases altogether, 35 of them in San Francisco. Exophthalmic goiter seems to be much more common in Bay counties than elsewhere in the State, and he remarks on the danger of the use of the iodine preparations, especially when a goiter exists, however small. He has had several cases of iodism in patients with small goiters, and he suggests the possibility of the strong sea winds in San Francisco affecting the frequency of cases. The therapy of thyroid conditions is discussed at some length. The reports as to thyroid medication in myxedema and cretinism are enthusiastic; large doses are not required, and they may produce unpleasant symptoms in myxedema. He has seen good results in exophthal-

muc goiter from long-continued faradism. He thinks many cases of exophthalmic goiter are amenable to surgery, and that more attention should be given to the statement of Horsley that division of the isthmus alone leads to retrogressive changes and shrinking in the rest of the gland.

A New Indican Test.—Instead of chloride of lime or chloride of iron, A. GÜRBER (*Münch. med. Woch.*, August 15, 1905) recommends osmic acid. An equal amount of concentrated hydrochloric acid is added to the urine, then two to three drops of a one per cent solution of osmic acid. Depending upon the amount of indican present, the urine will now turn violet, bluish-violet or a pure blue. If necessary, chloroform may be added like in the older tests. An excess of osmic acid does not matter, since this is not able to further alter the indican.

Modification of Sahli's Test-Meal.—H. P. T. OERUM (*Deutsches Arch. f. klin. Med.*, Vol. 83, Nos. 3 and 4) has found that the soup recommended by Sahli (roasted flour with butter) is not very palatable, so that he has substituted barley for the flour. If given according to the directions of Sahli, more information concerning the function of the stomach can be obtained than with an ordinary test-meal, since the amount of gastric juice secreted is also taken into consideration. It is thus possible to discriminate between hyperchlorhydria and supersecretion. The latter condition was found with nervous dyspepsia, the dyspepsia of constipation, enteritis, nephrolithiasis, cholelithiasis, tenia, etc., while hyperchlorhydria is seen in most cases of ulcer and chlorosis. The test-meal also permits one to distinguish readily between atony and supersecretion. In order to determine the amount of fat in the test-meal, it is not imperative to resort to a special centrifuge; it is only necessary to graduate the tubes of an ordinary centrifuge, so that the amount of fat, separated off after the amyl alcohol and sulphuric acid are added, may be read off and the necessary calculation made.

Pulmonary Streptothricosis.—T. G. ASHTON and G. W. NORRIS (*Journal A. M. A.*, September 9) report two cases of streptothricosis of the lungs and review the literature of the condition. They remark that one reason that this condition is not more often recognized is because it is not readily demonstrable by the ordinary carbol-fuchsin method of sputum examination. The micro-organism has been found in many cases only after the Gram method has been employed; hence, in suspected tuberculosis, when the tubercle bacillus is lacking, recourse should be had to this method. Of course, the mere presence of the streptothrix in the sputum or tissues does not necessarily prove it to be the primary infection. It may be secondary, but there are cases in which this has been shown to be the main and probably the sole agency. The tendency to metastasis, especially in the acute bronchopneumonic type, is remarked, the skin and brain being the most frequent localities, but other tissues and organs have also been involved. Clinically, streptothricosis of the lungs appears in two forms, the acute bronchopneumonic form, pyemic in its later stages, and the chronic form, first described by Flexner, which is clinically almost identical with pulmonary tuberculosis. In both cases reported, the patients were treated by stimulation and nourishing diet, and one decidedly improved and left the hospital. The other, under the same treatment, became progressively worse, the infection being apparently more virulent.

OBSTETRICS AND GYNECOLOGY.

Paravaginal Operation in Uterine Carcinoma.—Improvement in operative technic may accomplish much in the betterment of operative results in carcinoma of the uterus. The generally accepted radical operation of to-day includes extirpation of the uterus and appendages, together with the excision of the parametria, a portion of the vagina and a routine ablation of the lymphatic system of the pelvis. The last-named procedure is based on the assumption that the pelvic glands are early affected and would frustrate the object of the operation if left behind. Based upon an exhaustive study of authentic cases G. GELLHORN (*Am. Jour. Obstet.*, July, 1905) states that in cervical cancer the pelvic glands are affected in less than one-third of all cases, the invasions taking place after the parametria are infiltrated. The attempt to remove the glands as a routine procedure would subject two-thirds of the cases to an unnecessary operation fraught with considerable danger. The extirpation of the glands is almost always incomplete, both for technical and anatomical reasons. In view of these considerations the systematic search for, and routine ablation of the pelvic glands in carcinoma of the cervix uteri should be abandoned. In most cases, recurrence of cancer can only be prevented by giving the cervix the widest possible birth. The paravaginal method meets all requirements and is a distinct advantage over the abdominal route. The technic is in the main as follows: A lateral incision splits the whole vaginal tube, the left labium, the paravaginal and pararectal tissues, levator ani and coccygeal muscles. The vagina is then caught as far away from the cancer as possible with vulsella in a circular direction cancer as possible with vulsella in a circular direction. Below the vulsella a circular incision is made through the vagina connecting with the paravaginal cut. The vagina is now dissected off and the cuff thus formed sewed over the portio vaginalis. After the bladder has been separated by blunt dissection, Douglas' space is opened and the parametria found within easy reach.

Arteriosclerosis of the Uterus.—Having made numerous clinical and anatomical studies of cases operated on for uterine hemorrhage of obscure origin, P. FINDLEY (*Am. Jour. Obstet.*, July, 1905) has come to the belief that the essential cause lies in the myometrium, the sclerosed blood vessels and remote embarrassments to the circulation exercising a secondary influence. Metritis as a primary lesion independent of infection, is not accorded the consideration merited by its frequency and clinical significance. The muscular fibers of the uterine wall have an important function in controlling the caliber of the blood vessels and hence in regulating the blood supply to the uterus, as evidenced in the relaxed conditions of the uterine wall during menstruation and in post-abortion and post-partum hemorrhages. In all these conditions the hemorrhages are controlled by the contractions of the uterus. In view of the above, it is evident that any condition which lowers the muscular tone of the uterus may occasion an abnormal loss of blood into the endometrium and uterine cavity. The factors which contribute to muscular atony of the uterus are wasting diseases, anemias and acute febrile diseases which are often followed by uterine hemorrhages as a result of weakened support to the vessel walls from myodegeneration. Fibrosis uteri is a more frequent cause of muscular insufficiency. The connective tissue changes due to passive congestion, may be dependent upon an incompetent heart, obstructions in the lungs, liver, kidney and spleen, abdominal swellings, varicose veins of the pelvis and

uterine displacements. The walls of the blood vessels share in the hyperplastic changes resulting in an impairment of elasticity and a thickening of the media and adventitia. This condition is to be distinguished from the arterio-obliterans of the normal senile uterus, in which the vessels are partially or wholly obliterated by the tickened intima and contractions of the vessel walls. In the cases studied no hemorrhages were seen to come from ruptured vessel walls, but were capillary, often far removed from the sclerosed vessels. The diagnoses can only be made by first excluding other possible causes such as polyps, carcinoma and fibroids. The palliative treatment consists in rest, ergot, styptic applications and packing the uterine cavity. It is often necessary to resort to hysterectomy after repeated curetments have failed.

Atmocausis of the Uterus.—A woman, thirty-nine years old, having suffered from profuse and painful menstruations, was curetted, after which superheated steam was applied for one minute at 110° C. After three months amenorrhea the menstrual flow became more profuse than before the operation. A year and six months after the application of the steam, H. FLEISCHMANN (*Zentralbl. für Gynäkol.*, 1905, No. 20) performed a vaginal hysterectomy and found the uterus large, the walls thickened, the vessels sclerosed and the mucous membrane scarred and depressed in the lower part of the cavity, but swollen in the upper part. The microscope revealed a hyperplasia and hypertrophy of glands in the thickened mucosa. The central portion of the cavity was most affected by the steam, there being an atrophied mucosa devoid of glands. The membrane in the lowest part contained a few cystic glands. The writer suggests that the converging strokes of the curette in the lower segment might explain the irregular effects of the steam. In this case the atmocausis failed to obliterate the uterine glands or destroy the mucous membrane.

EYE, EAR, NOSE AND THROAT.

Progressive Axial Myopia.—The prevalence and increase of myopia is noticed by F. S. CROCKER (*Journal A. M. A.*, Aug. 26), who discusses his method of treating it by prism exercises of the internal recti and by the local careful use of galvanism, in addition to the routine treatment of refractive errors and vertical imbalance by glasses. In exceptional cases, these measures are supplemented by operation. The patient is given a single square prism, usually 10 per cent. or weaker, for practice with at home, and, with the glasses that have been ordered in use, is instructed to produce a crossed diplopia by viewing a candle at a level at about 20 feet distance, with the prism over either eye, base out, and then to attempt to fuse or bring the two lights into one. The exercise should be divided between the two eyes, the prisms being removed as soon as the two images are fused. This should be done twice or three times a day, and if noticeable pain is produced the time should be shortened. Each strength of prism should be used till the fusion is produced without apparent effort, and then gradually increased until a sufficient power of convergence has been obtained, the minimum in this practice being 48 degrees. During this treatment, which averages three or four months, he uses two or three times a week the interrupted galvanic current thirty or forty interruptions to the minute, the positive pole being applied by well-moistened sponges over the closed upper lids with the other pole at the nape of the neck. The current is then turned on gradually with the rheostat till a faint flash is seen by the patient with each interruption. No pain or discomfort should be pro-

duced, and the slight blurring of vision that may follow its application should pass away in a very few moments. Aside from the direct value of the galvanism, these office treatments enable the physician to see that his instructions are carried out. Patients, of course, should be instructed as to the proper use of their eyes and the amount of work to be done with them. He ends by stating that the most important etiologic factor in very many cases of progressive myopia is the insufficient power of convergence. It is immaterial whether this defect is in the anatomy of the orbit or imperfect insertion or innervation of the muscles. Whenever destructive fundus changes have not already seriously affected vision, it is possible to effect a cure. Proper attention should always be given to the eye muscles, as well as to refractive errors, and none but properly qualified individuals should be allowed to prescribe glasses.

The Epidemic of Pfeiffer's Glandular Fever.—Chicago physicians have had scores of cases of a peculiar glandular fever in children which resembled a streptococcus sore throat, but was accompanied by sudden and marked swelling of the cervical glands, signs and symptoms of a general sepsis, swelling of the spleen and liver, and in severe cases by acute nephritis. Influenza bacilli are found on the tonsils, as well as pus cocci. HELIODOR SCHILLER reports cases in the *Journal A. M. A.*, Aug. 5, in detail and discusses the diagnosis. Diphtheria and tuberculosis were easily excluded. No case was fatal, in spite of the serious character of disease and complications in some of the cases. Schiller says that physicians with hospital privileges ought to be able to make careful study of the disease and to report interestingly.

Submucous Resection of the Nasal Septum.—Realizing the lack of permanency in the results obtained by conservative operations for deflected nasal septum, J. J. MOONEY (*Buffalo Med. Jour.*, Aug., 1905) describes a method of submucous resection of the nasal septum, which is a modification of the Killian method. The operation consists in making a semilunar incision, under local anesthesia, through the mucous membrane, separating the mucous membrane and perichondrium with a dull elevator, cutting the cartilage and then separating the mucous membrane and perichondrium on the opposite side. The involved portion of cartilage is then removed by means of a Killian or Bollenger knife. Submucous polypi can be removed in the same manner. Ordinarily healing takes place in twenty-four to forty-eight hours by first intention. Its advantages, as claimed by the author, are: Simplicity of technic, shortness of time required, that it can be performed from either side, healing takes place in a short time and recurrence is impossible.

THERAPEUTICS.

Radium Treatment of Cancer of the Esophagus.—Cancer of the esophagus is one of the most intractable diseases with which we have to deal. Not even modern surgery has succeeded in combating this disease. MAX EINHORN (*Jour. A. M. A.*, July 1, 1905) reports on seventy-two cases that have been treated with radium. The radium receptacle for the esophagus consists of a rubber tube (about 17 F. diameter) which is provided with a mandrin and a capsule, the lower part of which is made of hard rubber and the upper part of metal. The two halves are screwed together. The upper part of the capsule is provided with a screw thread, by means of which it is attached to the screw tube portion. The capsules are made in three different sizes to fit strictures of various sizes. In using, the instrument is introduced into the mouth of the patient, the end being held in the hand. The results, considering the grave nature

of the condition, have been generally satisfactory, and the method is destined to play an important rôle in the treatment of cancer of the esophagus and deserves to be tried on a larger scale.

Massage of the Heart.—H. M. W. GRAY reports a case of resuscitation by means of subdiaphragmatic transperitoneal massage of the heart (*Lancet*, Aug. 19, 1905). A female patient, aged fifty-five years, was admitted to the hospital at 11.45 A.M., suffering from marked laryngeal obstruction. She was deeply cyanosed, inspiration was much obstructed, and expiration was also interfered with. At 12.53 P.M. the patient was reported as dying, and by the time the ward was reached she was apparently dead. High tracheotomy was immediately performed with a penknife, but the patient only made four or five spontaneous respiratory efforts. There was from the first no pulse at the wrist nor cardiac impulse. She was pallid, all reflexes lost, pupils widely dilated, muscles flaccid, and her eyes rapidly assumed a "glassy" look. Four or five minutes after the tracheotomy, the abdomen was opened in the middle line under the xiphoid, again with a penknife. The heart, absolutely flaccid, was easily palpated. Massage by intermittent pressure, 70 to 90 per minute, was carried out for about four minutes. At the end of this time the heart was felt gradually contracting, and after a few seconds more slowly beating. The pulsations were at first feeble, but after a few seconds more massage the beat grew stronger and quicker until at 1.07 it was beating at the rate of 90, and more vigorously than since admission. Soon after the heart began to beat, respiration became spontaneous. The patient died at 3 P.M. without having regained consciousness.

High-Frequency Current and the X-Ray in Pulmonary Tuberculosis.—Many investigators throughout the country have been using the newer forms of electrical treatment in pulmonary tuberculosis, but the details of operation have been too varied to admit of definitely formulating a technique that should be conclusive. O. SHEPARD BARNUM (*Arch. of Phys. Ther.*, Aug., 1905) reports five cases that have been treated and carefully details the method of procedure, in the hope that the results will be rendered comparable with those obtained by other operators. The inhibitive effect of the X-rays on the tuberculous process is utilized by combining one X-ray treatment per week with the high-frequency treatments. A high tube is used at a distance of 20 inches for a period ranging from five to twenty minutes. The effect is chiefly appreciable in the increased amount of expectoration. He administers the high frequency twice or thrice weekly, as may be advisable, for the entire time the patient is under his care. The treatment consists of a thirty-minute rest in a reclining-chair or couch which is in circuit with the machine, and is without sensation of any kind whatever; patients frequently go to sleep during the séance. Its effects are an immediate rise of temperature of at least one degree within the time of sitting, and a "feeling of lightness," as it is generally termed by the patients, which is in reality a very slight exhilaration, remaining appreciable during the subsequent forty-eight to seventy-two hours. At the end of a month the improvement is sufficient to give renewed hope and courage to the patient, and from then on the gain is usually steady, being particularly noticeable in the increase of flesh and a remarkable diminution in the number of bacilli in the sputum, as evidenced in the microscopical reports given above. Oscillations vary but little, either by difference in length of spark-gap, exciting force or construction of apparatus. He believes that quantity and ampère are key-notes of successful treatment.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor.
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

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LEA BROTHERS & CO.,

No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, OCTOBER 21, 1905.

THE MODERN CONCEPTION OF DIABETES.

AN auspicious event in the annals of scientific medicine in New York has just closed, and those who have had the rare privilege of listening to one of the foremost of the younger generation of German clinicians, the inspiration and teaching of Prof. Carl von Noorden will prove a fruitful heritage. The series of lectures on the pathological chemistry and treatment of diabetes mellitus, which have been delivered under the auspices of the Herter Lectureship at the University and Bellevue Hospital Medical College by the distinguished chief of the City Hospital of Frankfort-a.-Main, are, beginning with this issue, presented in abstract form to the readers of the MEDICAL NEWS (See page 798). A perusal of these cannot fail to excite admiration for the physician who has happily combined the results of laboratory investigation with the teachings of the bedside.

No other disease has made such large demands upon both of these resources of the science of medicine as has diabetes. Intimately bound up with so many intricate problems of metabolism, it has been a fascinating subject of study to the physiologist, the pathologist and the practitioner. Yet, in spite of the vast amount of patient investigation that has been devoted to this study,

the causes of diabetes are still veiled in obscurity. One theory after another has been put forth, but none of these has adequately served as the basis of a rational prophylaxis and treatment. The value of hypotheses in medicine may be gauged by the practical results proceeding from their application. Measured by the magnificent system of therapy that has been reared upon the hypothesis of von Noorden, his conception of diabetes is the best that has yet been advanced, even though no account be taken of the numerous experimental and clinical data upon which it is based.

According to this conception diabetes is a perversion of metabolism characterized by the inability on the part of the bodily cells to utilize the sugar in the blood. In order that the carbohydrates, which are the principal source of the bodily heat and work-power, may take part in the exchanges of the organism, they are first transferred into glucose, which is further split up into glycogen, a substance well-adapted for storage in the cells. It is the oxidation of this substance that is the immediate source of the bodily heat and muscular energy. Unless it is first transferred into glycogen, the glucose is of absolutely no use to the cells. It is this inability to transform glucose into glycogen and fixing this to the cells that forms the fundamental vice of the diabetic condition. This failure of glycolysis accounts for the abnormally large content of sugar in the blood. But there is another circumstance that contributes largely to this hyperglycemia, namely, the overproduction of sugar in the organism. Under ordinary conditions the carbohydrates not immediately needed for consumption are stored up, principally in the liver, in the form of glycogen. As the glycogen of the cells is used up, the latter make known their want, either through the agency of the central nervous system or of certain chemical reactions. The liver is called upon to furnish a fresh supply of glycogen to the cells. Transported to the latter in the form of sugar, the latter is used up as rapidly as it is delivered. "In diabetes the tissues go hungry for sugar because they are unable to get it. From them the liver possibly gets the signal for the further mobilization of sugar. In the healthy the mobilized sugar steps out into the breach where it is used up. In diabetes the reserves are called out in vain; they cannot reach the place where they are needed, and they are uselessly squandered." The more the tissues hunger for sugar,

the more is the formation of sugar by the liver affected. The abnormal appetite of the diabetic is the constitutional expression of this starvation of the cells. The inordinate demands made upon the liver soon results in the exhaustion of its store held in reserve. The proteids and then the fats of the body are in turn called upon to furnish the sugar, which, like the gold in the fable of the golden touch, is of no use to the magic hand that effected its formation.

The amino-acids that form part of the proteid molecule, such as glycocoll, alanin, leucin, are the source of the sugar thus forced from proteid. In a few cases of diabetes more sugar is excreted than can come from the proteids and carbohydrates available. The conclusion is drawn that this excess of sugar is derived from the fats, although under ordinary conditions no sugar is thus formed.

The aceton-bodies are attributed to the same error of metabolism that lies at the root of glycosuria. They are derived from the fatty acids, and the factor that determines their appearance is the exclusion of the carbohydrates from metabolism. Thus, in severe cases of diabetes in which the carbohydrates are partly or totally restricted, the resulting acetonemia may be a source of embarrassment to the physician, who, fearing the possibility of the onset of diabetic coma, may order the resumption of carbohydrates in the diet. But, as a rule, more is to be feared from the aggregation of the diabetic process thus produced, for this in itself will ultimately cause a greater increase in the amount of aceton bodies in the blood. As regards the necessity of testing the urine for these substances, it must be remembered that diacetic and oxybutyric acids deserve as much attention as aceton. Thus, up to a certain point, aceton alone appears in the urine. Beyond this point it is accompanied by diacetic acid. When the amount of aceton reaches one gram there is an appearance of from 30 to 40 grams of oxybutyric acid. The importance of this fact should be borne in mind, for it has been shown in von Noorden's laboratory that oxybutyric acid is toxic and that diabetic coma is to be attributed partly to this substance.

Von Noorden's remarks on the early stages of diabetes deserve particular attention. In the vast majority of cases this disease presents itself to the physician only in its florid stage. The period of development is a closed book to him. In the very rare cases in which the begin-

ning of the disease has been observed, as in physicians and pharmacists who made it a practice to examine their urine regularly, it has been noted that for many years before the disease is fully developed there are transitory attacks of glycosuria appearing at irregular intervals. No case of temporary glycosuria should be slighted; but the urine of the patient should be examined at stated intervals, and if the attack recurs frequently, then proper dietetic measures may be resorted to in order to ward off the serious consequences of the diabetes which may ensue.

Modern investigation points to the pancreas as the source of some substance instrumental in either in the building up or breaking down of glycogen. This substance is probably a ferment or an antiferment, in the latter case preventing a too rapid destruction of glycogen. In many cases of true diabetes neither macroscopic nor microscopic lesions of the pancreas are observed, and it is concluded that the disorder in the pancreas resides in the intracellular chemical mechanisms that are concerned in the elaboration of the internal secretion. This disorder may exist without impressing any anatomical or histological change in the pancreas. The islands of Langerhans are now looked upon as a stage in the evolution of the true secreting cells of the pancreas, rather than being regarded as the seat of the elaboration of the internal secretion.

HEMOPHILIA.

Just as in ordinary popular literature, there is every few years, often apparently without any definite reason, a revival of interest in some old-time author, so in medical literature, there are cycles of revivals of attention for diseases that have been known for many years but that seem to present some new phase. During the past year or two there has been such a decided reawakening of interest in hemophilia, and some important additions to our knowledge have been made.

While the affection is in most cases distinctly hereditary, occurring for the most part in the males of the family, and being transmitted through the females who rarely suffer from it, a certain number of genuine cases of hemophilia have been reported in the last decade, in which there was no hereditary influence traceable for three or more generations. As has been said with regard to certain nervous diseases which are distinctly hereditary, these affections must begin somewhere, and it seems not unlikely that in

these cases we are in the presence of an ancestor rather than a descendant, one who is to transmit the disease, though himself without hereditary tendency to it.

Another rather interesting feature has been the description of cases of true hemophilia occurring in the female. Usually these cases have been in young children. As can be well understood, the menstrual period in females suffering from hemophilia would usually prove so serious a drain upon the health owing to the blood dyscrasia present, that such patients would not be likely to survive the establishment of the menstrual process. There has been some discussion as to whether tendencies to hemophilia do not occur more frequently among young female children than has been thought, but prove fatal before adult life. The curious biological factors in the disease, by which it is transmitted by the female who herself is not a sufferer from the affection, has been noted as a peculiar exemplification of natural selection. If the female suffered from the disease as well as the male there would be a liability to so many fatal hemorrhagic incidents in the course of menstruation and childbearing that it would not be long before the families would disappear. Their survival is due to the exception of the female from the diathesis in the family stock.

A highly speculative and at the same time suggestive therapeutic procedure is suggested by the fact of this immunity in women. It is but recently that Lachlan Grant (*Lancet*, Nov. 5, 1904) proposed the use of ovarian extracts for the treatment of bleeders, feeling that in these substances, perhaps, might reside certain immunizing principles. Their therapeutic utility he has tested with some small measure of success.

While the problems connected with the pathological changes are far from being solved, the attention of pathologists is centering about studies tending to show that the affection is not a change in the blood itself, but is rather a congenital pathological anomaly of the vascular system. For a long time it was considered that the reason for the persistence of the bleeding in sufferers from hemophilia was a lack of coagulating power in their blood. The effects of calcium chloride therapy would tend to support the view. The coagulating power, however, has been tested recently in a large number of cases and has been shown to be quite equal to that of normal individuals. On the other hand, careful histological investigations have tended to support Virchow's conception of a peculiar delicacy of structure in

the smaller blood vessels and a tendency to the absence of the elastic material, on which the contraction and closure of injured blood vessels depends. The bearing of these observations is reinforced by some recent therapeutic developments. A very successful method of treating the bleeding in hemophilia has been found in the use of large doses of some derivative of the suprarenal gland. This has the effect of stimulating the blood vessels to contract and consequently makes up, for the time being at least, for their natural lack of contractility in this disease. Notwithstanding this successful suggestion for therapeutics, however, it is to be noted that sufferers from hemophilia do not exhibit any tendency to have lower blood pressure than normal individuals and indeed have no constitutional manifestations of their affection at all, except when trauma of some kind leads to the beginning of hemorrhage. Moreover, suprarenal extracts have proven unavailing in many instances.

A very interesting phase of recent observation consists in the similarity between certain forms of hemorrhagic arthritis in connection with hemophilia and tuberculous disease of the joints. In more than one recently reported case the swelling in a joint, consequent upon an effusion of blood into it, has been mistaken for tuberculous arthritis and the patient has been prepared for operation. There are a few cases in literature in which sufferers from supposed tuberculous joints have died from hemorrhage after operation, and there is question whether these were not further examples of this same simulative tendency. Sometimes in hemophilia a number of joints are affected in this way at the same time, and one observer has recently pointed out that occasionally young adults suffering from hemophilia are reported as having died from generalized tuberculosis. There has, indeed, been a tradition that sufferers from hemophilia were more liable to tuberculosis than normal individuals. There is more than a suspicion that the true etiological factor in the symptoms in both the lungs and the joints as well as the abdominal cavity in these cases was really the hemophilic diathesis. It must not be forgotten that hemophilia can produce very deceptive symptoms in the lungs, and that a severe attack of coughing may be the cause of a whole set of peculiar physical signs in the lungs which are really due to minute hemorrhages from the capillary blood vessels of the bronchi.

MEETING OF THE NEW YORK STATE MEDICAL ASSOCIATION.

THE twenty-second annual meeting of the New York State Medical Association promises to go down in history as one of the most noteworthy in its career. There seems now to be no doubt that an amalgamation of the two medical organizations that have hitherto existed in this State will be consummated within a few months. The business meetings of the first and second days were very fully attended, evidently by those deeply interested in seeing personally that there should be no hindrance to reunion this time, if show of numbers could effect the purpose. The vote carefully recorded and taken by roll call shows that the members of the Association were practically unanimous in their demand for the amalgamation of the two professional bodies. The two members who voted nay in the face of over fifteen hundred yeas may be considered the heroes of a lost cause, but are much more likely to prove, if eventually their names should become known, to be merely obstinate individuals who never by any chance depart from an established opinion.

One of the most noteworthy features of the present meeting has been the special attention devoted by the Ladies' Auxiliary to supplying interesting social entertainments for the wives and other feminine relatives who accompanied the doctors to this meeting. Each morning of the meeting members of the Ladies' Committee were ready to meet lady visitors, to accompany them on sight-seeing or shopping expeditions or, continuing the quotation from the circular, "to assist them in any way that would contribute to the enjoyment of their visit." A special automobile drive around the upper part of New York was conducted on one beautiful day and a steamboat excursion around Manhattan Island on another. These features, which have been lacking at the meetings of State medical organizations in New York State before this, will doubtless be continued after reunion and will make a striking attraction that will be thoroughly appreciated by lady visitors.

The scientific business of the meeting was quite the equal in interest of the other features specially planned for this year. The symposium on hygiene and preventive medicine, held on Wednesday morning, was taken part in by some of the best authorities in New York State, and as it involved the two most important practical questions that the profession has to deal with,

those of the protection of the water supply and the protection of the milk supply, it can be readily understood that it was listened to with zealous attention and drew a good crowd. The symposium of Wednesday afternoon on various practical considerations of eclampsia, in the light of our present knowledge, was really the most prominent scientific feature of the meeting and an event in the medical history of the year.

While in giving up its name the Medical Association was apparently signing its own death warrant and assisting at its own obsequies, there was no doubt at all in the minds of those in attendance at this meeting of the vitality of the corpse and of its approximate resurrection, which will be seen as the result of the new blood injected into the Medical Society of the State of New York. While it gives up only its name, the combined organizations are to exist under the plan which has been worked out by the New York State Medical Association so effectively that it has now been adopted as the plan of the American Medical Association and is recommended by the national body to all the States as the most effective method of the organization to enable them to secure all the advantages that are desired from professional reunion. While then we write Vale to the New York State Medical Association, in the more proper sense we write Ave or Hail to the new body that is to arise from the union.

ECHOES AND NEWS.

NEW YORK.

New York Doctors in New Jersey.—Beginning October 15, 1905, New York physicians who want to practice in New Jersey will have to pass a rigid examination. The State Board of Health of that State has adopted a rule to that effect, and the authorities declare it will not be rescinded until the New York authorities agree to allow duly qualified New Jersey doctors to practice in this State without special examinations. A conference on the subject was held recently by representatives of the New York State Regents and delegates from New Jersey medical societies. It was announced last week by Dr. Edward Hill Baldwin, of Newark, president of the New Jersey Board of Health, that there could be only one solution of the affair, and that was for the Regents to agree to admit duly registered New Jersey practitioners to equal privileges with their professional brethren on this side of the Hudson. This situation is due to a controversy which has been waged for several years between the medical authorities of the two States. New Jersey has no medical colleges of her own and sends her young men to institutions in New York City and Philadelphia to earn their degrees in medicine. Requirements for a certificate to practise in New Jersey

were raised in 1903, the Health Board of that State asserts, to equal if not slightly exceed in rigor those of the New York Regents. The Health Board of New Jersey then sent a request that New York indorse the new certificates. The Regents have made it a practice never to indorse any body, not even New Jersey lawyers, and as a result there followed an animated controversy. Each side spoke of the other as stubborn, and after negotiations had been conducted without any hope of settlement medical diplomatic relations were severed. By this action to-day many New York physicians who have been in the habit of establishing themselves at New Jersey summer resorts for two or three months of the year will be most affected. Before they can do so hereafter they will have to qualify by passing an examination in New Jersey, and it will not be a very easy one. Young New Jersey physicians who aspired to practise for the summer at Long Island coast resorts and were prevented from doing so by the New York laws will now have their revenge. Several eminent physicians in Lakewood, N. J., are registered both in New Jersey and New York by examination, so that they will suffer no inconvenience. New York specialists who may be summoned to consultation with their New Jersey brethren will not have to be examined.

City Plans a Tuberculosis Hospital.—As soon as plans can be prepared and the contracts let work will begin on the New York City Sanatorium for Consumptives, which is to be built on Staten Island on a site already the property of the city. The preliminary drawings have been approved by James H. Tully, Commissioner of Charities. The sanatorium will be in the center of Staten Island, where the city owns 130 acres of land. Part of this land was acquired by the annexation of Richmond County. The rest was purchased. The sanatorium will accommodate 800 patients, and will cost about \$2,000,000, exclusive of site. Last spring \$200,000 was appropriated for beginning the work, and Commissioner Tully hopes before this is expended to have quarters for 100 patients. "There is nothing in common between the sanatorium to be built on Staten Island and the proposed sanitarium for the treatment of incipient cases," said Commissioner Tully. "It is entirely separate from the undertaking of the Health Department. We will treat consumption in all stages, and, to my mind, no nobler work was ever undertaken by the city. There are thousands of men and women suffering from the disease who are unable to receive modern treatment, and to whom the idea of going to Blackwell's Island, where they could at least obtain pure air and sunshine, is repulsive. The Staten Island property overlooks the Narrows and the Lower Bay. It is the highest point on the Atlantic coast between Portland and the Gulf of Mexico. It is true that the air is not dry, but the principal thing is to get pure air, and we will get plenty of it there. The site is within easy reach of the city. Facing due south, it will be protected on the north by an extended woodland. There is plenty of room for the institution to grow. The amount already appropriated will give us a good start, and further appropriations will doubtless be forthcoming when needed. I have talked over the plans with Mayor McClellan, and he has approved them." Mayor McClellan instructed Commissioner Tully early last summer to have the estimates and drawings for the sanatorium prepared, and the appointment of Ar-

chitect Almirall followed. With Dr. John F. Fitzgerald, the General Medical Superintendent of the Department of Charities, he inspected the tuberculosis sanatoria of New York State and Massachusetts, and his preliminary drawings incorporate the most advanced ideas. The ward buildings are to be erected in the form of an arc, which is designed to furnish the maximum sun exposures. At the terminations of the arc will be grouped the service buildings, with a power house so situated as ultimately to serve the farm colony and dormitories of the Department of Charities. Midway in the line connecting the ends of the arc will be the administration building, between which and the ward buildings the kitchen and dining hall will stand. The administration building will contain the offices, examining rooms and laboratories, and will also house the staff and provide operating and accessory rooms for general hospital purposes. The Nurses' Home, which will stand to the west of the administration building, will provide bedrooms, sitting and lecture rooms, library, kitchen and dining-rooms, with a suitable class kitchen and experiment room for the housing and training of nurses. Immediately to the south of the Nurses' Home will be the amusement hall. The power house and laundry buildings, with the omnibus and ambulance house, will be built to the east of the administration building. From east to west, arranged on the arc and projecting from it to the south, will be the ward and single room pavilions, with the chapel for religious services. Each of the three pavilions planned will accommodate about 100 patients. At the southern extremity of each ward will be a sun parlor, and at the sides of each ward will be verandas, with sufficient space for every bed and ample distance between and to the backs of them. The windows will extend from ceiling to floor, so that the beds can be rolled out on the verandas. The entire roof of each ward building is to be treated as a roof garden, with the northern end inclosed in glass, shaded with khaki awnings, for use as a sun parlor. Two of the ward buildings are to be given up to single rooms for the care of the more advanced cases. The buildings will be reinforced concrete throughout, with red tile roofs, and the iron of the verandas will be painted green.

PHILADELPHIA.

Children Barred from Attending School.—As a result of the examinations made by the inspectors of the Bureau of Health 675 children were excluded from school for one of two causes; they were either victims of a transmissible disease or they had not sufficient evidence of vaccination. During the month of September the inspectors made 15,729 examinations.

Chinese Physicians Visit Hospitals.—Having attended the army and navy surgeons' convention at Detroit and having completed their visit to the Johns Hopkins Hospital, Dr. Ho Kan Yen, fleet surgeon of the Chinese man-of-war *Hai Chow*; Dr. Tsui Ying Young, major surgeon in the Chinese army, and Dr. W. P. Chung, surgeon at the Government Hospital, at Chamaufar, China, visited the University of Pennsylvania Hospital and the Philadelphia Hospital. They will stay here several days and expect to see operations of various kinds.

A Case of Caisson Disease.—Thomas Sheehan, of Twenty-second and Albans streets, was taken to the Polyclinic Hospital in a semiconscious condi-

tion, suffering with caisson disease. The malady was contracted while working at the Williamsburg bridge in New York City. He first observed a stiffening of the joints, then a partial paralysis. While walking along the street one evening he was seized with an attack and fell unconscious in the street, where the patrol picked him up and carried him to the hospital.

Meeting of the Philadelphia County Medical Society.—This society held its regular meeting Oct. 11, 1905, with Dr. J. M. Anders in the chair. Dr. D. L. Edsall read a paper on the "Physiology of Glycolysis." Dr. L. Napoleon Boston read a paper on the "Varieties of Glycosuria." Dr. A. G. Ellis read a paper on the "Relation of Diabetes Insipidus and Diabetes Mellitus." Dr. James Tyson read a paper on the "Management of Diabetes." The discussion was opened by Dr. Henry and continued by Dr. Hare, Dr. Scott, Dr. Daland and Dr. Swan.

Meeting of the Philadelphia Pediatric Society.—This was held Oct. 10, 1905, with Dr. McKee in the chair. Dr. Millicent B. Hopkins showed a "Case of Intra-uterine Amputation," "A Case of Chorea with a Heart Lesion," "A Case of Bell's Palsy Following Otitis Media." The discussion on these cases was opened by Dr. Hammond and continued by Dr. Griffith and Dr. Harlan. Dr. Arthur Van Harlingen read a paper on "A Case of Molluscum Contagiosum." The subject was discussed by Dr. Hand, Griffith, Ostheimer and Harlingen. Dr. Herbert Carpenter showed a "Case of Infantile Scurvy." This case was discussed by Drs. Miller, Griffith, Westcott, McKee and Carpenter. Dr. Howard Carpenter showed two cases of "Muscular Dystrophy" occurring in brothers. The cases were discussed by Drs. Hand and Griffith.

Advances in Sanitation.—Dr. Samuel Dixon, Commissioner of Health, and his Advisory Board held their first meeting, at which the Commissioner gave a short summary of the work that has been done by the new department in its many and broad lines of labor. He has prepared regulations to prevent the spread of an epidemic of smallpox in Pennsylvania. These regulations will be sent to the physicians and to any others who may have to deal with smallpox or other contagious diseases. He maintains that so soon as the local health authorities are aware of the existence of a case of smallpox their action should be immediate and exhaustive. He advises that quarantine of patients and households be absolute; that the house be conspicuously placarded; that if necessary guards should be placed to enforce the quarantine; he advises that the source of the infection should be determined; that domestic animals and pets be quarantined. The isolation should extend twenty days beyond the cure of the last developed case.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about \$780, will be made on July 14, 1906, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and must be received by the secretary of the college on or before May 1, 1906. Each essay must be sent without signature, but must be plainly marked with a motto

and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1905 has been awarded to Dr. Chalmers Watson, of Edinburgh, for his essay entitled "The Importance of Diet; An Experimental Study from a New Standpoint."

CHICAGO.

New Plan at Northwestern.—Steps for making the medical school of Northwestern University an integral part of the institution were recently taken at a meeting of the Board of Trustees of the University. The Governing Board of the medical school was instructed to turn over to the university trustees the \$350,000 special endowment of the former. The University Board, it is thought, will be the immediate supervisor of the affairs of the Medical Department in the future.

Hospitals Are Cheated.—Chicago hospitals who maintain an open free list are complaining of the imposition of patients from other cities asking for charity treatment when able to pay for medical services. A large number of charity entries, mostly from large Eastern cities, have turned out to be persons of means, and in many cases of comparative wealth. This condition of affairs was brought to light through an investigation conducted by various hospital authorities since the recent attempt of New York to ship lunatics to Chicago. One case is cited as that of a woman charity patient at the South Side Hospital. Recently she made a will showing that she possessed considerable money, which was deposited in an Evanston bank, as well as valuable real estate in Chicago and several Eastern cities.

Diphtheria in South Chicago.—Apropos of recent sensational statements of a diphtheria epidemic raging in this part of the city, Chief Medical Inspector Spalding reports in the weekly bulletin of the Health Department for October 7 as follows: "Diphtheria in South Chicago according to reports of cases received shows no increase. Department inspectors have been in the infected neighborhood and believe the doctors are quite generally reporting the cases. Physicians were found who did not know that diphtheria should be reported to the Department, and many of them were not aware that antitoxin is furnished free for administration in cases where parents are unable to pay for treatment. Some doctors were using antitoxin as a curative remedy, but owing to the expense preventive treatment has not been practised to any extent. Physicians have been again informed that the Department will furnish antitoxin free for such as are unable to pay—both for preventive as well as for curative treatment. A close watch is being kept upon the infected district and all aid possible will be rendered to the resident physicians. They will be encouraged to resort to immunization, urged to report all cases to the Department and disinfection of infected premises will be promptly made. The sensational charge that parents are having their children insured and exposing them to diphtheria for the purpose of collecting insurance money after death, is so absurd that it merits no notice except for the fact that it is a grave charge against a child-

duty are: Mr. W. P. Byrne, C.B., of the Home Office; Mr. W. H. Dickinson, L.C.C., chairman of the National Association for Promoting the Welfare of the Feeble-Minded; Dr. H. B. Donkin, one of the Commissioners of Prisons; Dr. J. C. Dunlop, Inspector under the Inebriates Act in Scotland; and Mrs. Pinsent, of Birmingham. The deputies arrived in New York last week and have now commenced their tour of inspection.

Psychic Derangement in Russia.—It is difficult to take seriously the assertions of a well-known Russian psychiatrist, Dr. Jacoby, that the insurrection aboard the Russian battleship *Potemkin* Tarrichesky is to be regarded rather as an explosion of a "collective" psychic derangement than as a well-organized plot against absolutism, which failed only because it was precipitated before it ripened fully. It seems that the doctor is simply moved by humanitarian principles in making, as it were, an indirect appeal to the Russian Government not to visit its customary savage punishment on such of the insurrectionists as will fall into its hands (it is said, however, that it has already executed all those who surrendered voluntarily, or who have been inveigled by promises of light punishment), but rather to consider them as psychically unstable individuals who should be submitted to examination by an expert alienist so as to establish the degree of their responsibility in the matter. On the other hand, it must in truth be admitted that the present condition of internal affairs in Russia has given rise to an enormous number of cases of individual as well as collective "induced" psychoses. The entire "psyche" of the land is woefully out of joint. The reaction to even slight irritation is more pronounced than ever before, and a comparatively insignificant amount of bad "vodka" (to take one example out of many) has been found repeatedly to be sufficient to inflame an entire regiment of reservists into maniacal fury, with tendencies toward plunder, riot and even wholesale murder. Still we think that as regards the *Potemkin* affair Dr. Jacoby seems to stretch the point just a little too far.

The First Belgian Congress of Neurology and Psychiatry.—On September 28 and 29 there was held at Liège, in connection with the International Exhibition which is now in progress in the city, the first Belgian Congress of Neurology and Psychiatry. The opening meeting took place in the buildings of the university, where M. de Latour, Director-General of the Ministry of Justice, received the delegates from France, Germany, Holland, Switzerland, Turkey and Roumania. Dr. Glorieux began the formal business of the congress by delivering an address dealing with the occurrence of neurasthenia among the working classes. This disease was, he remarked, popularly supposed to be confined almost entirely to persons for whom the struggle for existence was a mental rather than a physical one, though probably the unrestrained pursuit of pleasure was also in some degree responsible for its development. Statistics, however, showed that in both Germany and Belgium the incidence of neurasthenia upon artisans was very marked, while in Scandinavia insurance companies have been so severely taxed by the extension of the malady that they have found it advisable to construct special sanatoriums. Dr. Glorieux referred to the view that neurasthenia may be due to the toxic effects of influenza, but he himself attributed the disease to the insanitary environment in which work is often carried on, and he

looked to the more general introduction of machinery and the consequent regulation of the conditions of labor for improvement in this regard. In the afternoon Mdle. Joteyko, chief of the Psycho-Physiological Laboratory of the University of Brussels, contributed a paper on the Sense of Pain, and Dr. Lannois, of Lyons, one upon Epileptiform Spasm of the Foot, while Dr. Heilporn, of Antwerp, described a case of Acromegaly. The morning of the second day was devoted to a visit to the asylum of St. Agatha and to the discussion of Dr. Cuyllit's paper entitled "Work in the Therapeutics of Mental Maladies." A visit was also paid to the *maison de sante* at Glain, and after lunch the scientific section of the exhibition was inspected.

Suicide and Sex.—Not long ago attention was drawn in these columns to an analysis of the official suicide returns of fifty cities in the United States, by a well-known American statistician, Mr. F. L. Hoffmann. The figures with which he dealt were those relating to the year 1904; they showed that out of every 100,000 of the population 195 persons had committed suicide during the year, and that the rate had been persistently rising for fourteen years. Another statistician, Professor W. B. Bailey, of Yale, appears to have been investigating the same question from another point of view. Dealing with the 29,344 cases of suicide officially recorded between 1897 and 1901 he finds that the male suicides outnumber those of the "weaker sex" by seven to two, while as regards the age incidence of a morbid inclination toward *felo de se* the age period of 20 to 50 covers nearly two-thirds of all the cases. In the absence of any information as to the relative number of persons in the United States at the different age periods this statement is not very informing, but so far as it goes it would seem to indicate that under the lower age limit there are few to whom life seems unattractive, while after 50 a natural end looms so near that it is scarcely worth while to precipitate its arrival. Other results are more illuminating. It would appear that, other things being equal, a married man is more likely to commit suicide than either a single man or a married woman, while women who are single, either because widowed or divorced, or because they have never been anything else, seem to find life less attractive than similarly circumstanced men. Neither ill-health nor alcohol are such potent causes of suicide as business losses, and to the latter even absorbing sentiment such as is represented by a love affair has to yield the palm. Since business plays so prominent a part in the production of suicide, it is comprehensible that Saturday should not be a popular day on which to ring down the curtain. Those who meditate this step have worried through the week, have received their pay, and have anyhow a day of rest before them. Monday—Black Monday—is the day when those faced by business disaster or crushed by personal ill-health seem least disposed to continue the struggle. On the other hand, Sunday is the day when, for women at any rate, domestic troubles prove most unbearable. As for the hour of greatest weakness, this is apparently from nine to twelve in the evening.—*British Medical Journal*.

Western Surgical and Gynecological Association.—This association will meet at Kansas City, Mo., December 28 and 29, 1905. The following program has been arranged: President's Address, by Dr. H. D. Niles, of Salt Lake City; "Extra-Uterine Pregnancy, with Report of a Case," by Dr. J. W. Andrews, of Mankato, Minn.; "Tuberculosis of the Tendon Sheaths and Bursae," by Dr. J. Clark Stewart, of Minneapolis, Minn.; "Tuberculous Glands of the Neck," by Dr. Daniel N.

Eisendrath, Chicago, Ill.; "Tuberculous Peritonitis," by Dr. T. E. Potter, of St. Joseph, Mo.; "Gunshot Injuries," by Dr. George Goodfellow, of San Francisco, Cal.; "A Plastic Operation for the Permanent Relief of Cicatricial Talipes Calcaneus," by Dr. A. F. Jonas, of Omaha, Neb.; "Loose Bodies in the Elbow Joint," by Dr. T. P. Livingston, of Plattsmouth, Neb.; "Ideas Concerning the Management of Appendicitis Based upon One Thousand Operations," by Dr. VanBuren Knott, of Sioux City, Ia.; "Modern Methods of Dealing with Appendicitis in Its Various Stages," by Dr. C. H. Wallace, of St. Joseph, Mo.; "Appendicitis, with Further Reports from Physicians Who Have Suffered from the Disease," by Dr. I. B. Perkins, of Denver, Colo.; "Spinal Injuries," by Dr. A. L. Wright, of Carroll, Ia.; "A Consideration of the Technic of Laminectomy," by Dr. Harry M. Sherman, of San Francisco, Cal.; "The Free Interval in Intra-Cranial Hemorrhage," by Dr. F. Gregory Connell, of Salida, Colo.; "Chylous Cysts of the Mesentery," by Dr. Miles F. Porter, of Fort Wayne, Ind.; "Fractures about the Elbow Joint," by Dr. W. D. Haines, of Cincinnati, O.; "Treatment of General Peritonitis," by Dr. Donald Macrae, Jr., of Council Bluffs, Ia.; "The Principles Involved in Peritoneal Drainage," by Dr. R. C. Coffey, of Portland, Ore.; "Conservatism in Post-Operative Treatment," by Dr. S. C. Beede, of David City, Neb.; Paper by Dr. Jabez N. Jackson, of Kansas City, Mo.; Paper by Dr. Charles H. Mayo, of Rochester, Minn.; "Preoperative Thrombi in the Region of Field of Operation as a Cause of Post-Operative Complications and Death," by Dr. A. W. Abbott, of Minneapolis, Minn.; "Dangers of Accidental Traumatism to the Uterus during Operation," by Dr. Chares A. Stewart, of Duluth, Minn.; "Dyspepsias Amenable to Surgical Treatment," by Dr. Wm. E. Ground, of Superior, Wis.; "Drainage of the Male Pelvis," by Dr. Wm. Jepson, of Sioux City, Ia.; "The Plastic Surgery of the Trachea," by Dr. A. I. Boufflur, of Chicago, Ill.; "Undescended Testicle," by Dr. A. E. Benjamin, of Minneapolis, Minn.; "Some Observations on Renal Surgery," by Dr. D. W. Basham, of Wichita, Kan.; "The Choice of Ligature and Suture Material for Abdominal Surgery," by Dr. H. G. Wetherill, of Denver, Colo.; "Carcinoma of Colon," by Dr. W. W. Grant, of Denver, Colo.; "Traumatic Displacement of a Kidney which Subsequently Became Adherent to the Pelvis and Infected, Necessitating Nephrectomy," by Dr. G. G. Cottam, of Rock Rapids, Iowa; "Pathology and Treatment of Hallux Valgus," by Dr. A. E. Halstead, of Chicago, Ill.; "Report of a Case of Gluteal Artero-Venous Aneurism," by Dr. J. E. Summer, Jr., of Omaha, Neb.; "The Symptoms of Spinal Disease," by Dr. S. C. Baldwin, of Salt Lake City, Utah; "The Effects of Osmic Acid Injections Upon the Tissues," by Dr. Joseph Rilus Eastman, of Indianapolis, Ind.; "Transvesical Operation for the Relief of Prostatism in the Aged Male," by Dr. Charles E. Bowers, of Wichita, Kan.

Medical Terms in the "New English Dictionary."

—Although carrying the alphabet only from Pennage to Pfennig, the present part of Dr. Murray's great dictionary contains a host of words which have an interest for the medical man, according to the *British Medical Journal*. There is, for instance, the group of the *peri's*, from *peri-adventitial* to *peri-vitelline*, and from *pericementum* to *peri-visceritis*. Among these we meet with the names for all the inflammations surrounding organs, such as *periadenitis*, *perimetritis*, *perinephritis*, *periphlebitis*, and the less familiar *pericowperitis*, as well as a large number of anatomical terms, such as *pericardium*, *pericranium*, *perichondrium*, *periosteum*, *periotic*, and

peritoneum. Some of the *peri's* would puzzle most medical men to define; there is *periapt*, which means a charm or amulet against a disease (one of the illustrative quotations speaks of "a spider sewn up in a rag and worn as a periapt about the neck to charm away the ague"); there is *perisystole*, the short interval of time between the systole and the following diastole of the heart; and there is *pericystomatitis*, the inflammation of the surrounding membrane of an ovarian cystoma. *Period* has now its special meanings in connexion with intermittent fever and the menstrual function, but formerly it referred to the time during which a disease ran its course; thus, an eighteenth-century Lexicon defines it as "the Space in which a Distemper continues from its Beginning to its Declension, and such as return after a certain Space with like Symptoms are called Periodical Distempers." *Perkinism* was a method of treatment introduced by the American physician, Elisha Perkins, for the cure of rheumatic diseases, and it consisted in drawing two small pointed rods—one of steel and one of brass—called metallic tractors, over the affected region. Perkins died in 1799, but *Perkinism*, or *tractoration* (as it was called), evidently lived a little longer (perhaps still lives under other names!), for in 1803 a book was published with the title *Terrible Tractoration: a Poetical Petition Against Galvanizing Trumpetry and the Perkinistic Institution*. Other interesting words are *Pest* and its associates (*Pest-house*, *Pestiduct*, *Pestiferous*, *Pestifugous*), and *Pestilence* and its derivatives. *Pest*, at first, meant any deadly epidemic disease, but came to mean the bubonic plague, especially in Scotland in the sixteenth and seventeenth centuries. A quotation from the history of John Knox says: "Within the Castell was the pest, and diverse thairin dyed." The curious obsolete word, *Pestiduct*, meant a channel of the plague or of any infectious disease. *Pestilence* has similar meanings. *Pestilence wort*, which once had a reputation as a cure for the plague, is the Butterbur, *Petasites vulgaris*; *Pestilential Fever* is an old name for typhus. The *Pestle* is a word specially interesting to the compounder of drugs, and is derived from *pinsère*, to pound or bruise. "His medical science," wrote Washington Irving in his book on Goldsmith, "could not gain him the management of a pestle and mortar." *Petit-mal*, meaning a mild form of epilepsy with abortive or incomplete fits, is a recent introduction into the English language (1878), and is, according to Dr. Murray, not yet naturalized. *Pennyroyal* has long been esteemed for its medicinal virtues, but few people probably have any notion that it has nothing to do with the coin of that name, but is derived from pulegium, thyme, and "real," royal. *Pepsin*, *peptone*, *peptotoxin*, *percussion*, *pertussis*, *pessary*, *petechia*, and many other medical words, or words used in a medical sense, are defined, and appropriately and copiously illustrated by Dr. Murray; and all students and admirers of his work can only thank him and his co-workers for another part of the invaluable Oxford English Dictionary.

Report on Plague in Calcutta.—The official report on plague in Calcutta for the twelve months ended June 30, 1904, by Dr. T. Frederick Pearce, officiating special health officer, with appendices by Dr. W. C. Hossack and Dr. H. M. Crake, has only recently been issued. The method and care with which this report has been drawn up is highly creditable, says the *Lancet*, to the medical officers concerned and is of considerable value epidemiologically. The opportunity of studying a recurring epidemic disease during the "quiescent" periods and watching its development and decline during the "active" periods of its course is a unique experience in medicine, but it is one which has been taken full ad-

vantage of by Dr. Pearse and his staff. The most striking feature of plague in Calcutta, as in other parts of the world, is the persistency of the seasonal recurrence. It is not only known, for instance, that plague in Calcutta will reach its maximum development during the month of April and its fall to a minimum level in July, but the very weeks during which these limits are attained recur year after year with notable regularity. The coterminous appearance of plague in rats and man is confirmed by the observers in Calcutta to a striking degree. In the month of January of each year the mortality in rats increases and cases of plague of the bubonic type reappear in man about the same time. In the report this fact is merely placed on record. Speculation as to the relationship of the disease in rats to the infection of man is withheld; there is undoubtedly wisdom in this, for unless distinct and experimental proof for or against direct infection from rats is to hand it is useless to reopen this much-discussed subject. The type of plague during the "quiescent" period—*i.e.*, during the season when the disease is more or less of a sporadic character—differs to some extent from that encountered during the period of "active" outbreak. This point is especially dealt with by Dr. Hossack. With the approach of the active period the bubonic type prevails and increases as the outbreak waxes in virulence. With the wane of the outbreak the bubonic type of the disease diminishes, and is rare or altogether absent during the quiescent stage. Cases of illness during the quiescent period are in danger of being returned as plague when in all probability they are due to other causes and so conclusively has this been shown to be the case that there are probably many more cases notified to be plague than actually occur. Dr. Hossack is so impressed with this possibility that he states that "in fact, it seems to me that for a period of two or three months the city is practically free from plague." With, however, the utmost care on the part of the medical staff, exact computation of the actual number of plague cases in Calcutta under the present system of registration is impossible. When a death is reported the medical inspectors are dependent on the history of illness given by the friends of the deceased, whether the patient suffered from plague or not. As the majority of the cases are not seen alive and most of the dead are buried without post-mortem examination, it will be seen that all cases of plague are not, and cannot be, examined bacteriologically. In this way errors arise, so that the notification of disease, even with a full and competent staff of plague workers, must in a large native city always be incomplete. The case mortality from plague, whatever the season, stands at over 90 per cent., and it is actually computed to be higher during the quiescent than during the active period of the disease. The chairman of the corporation of Calcutta states that "the operations of the plague department caused no excitement or agitation. The upper middle class people are pleased at the removal from their neighborhood of insanitary bustees (dwellings), which they regard as a sanitary danger to themselves, while the compensation paid to individual hut-owners is amply sufficient, more especially as the hut-owner is allowed to retain the materials of his hut. No objection is raised against disinfection in Calcutta."

OBITUARY.

Dr. ABISHA S. HUDSON, eighty-six years old, died October 10, at Mount Vernon, Ohio. He founded Keokuk Medical College and contributed much to medical science.

Dr. MORRIS WIENER, physician, playwright and novelist, died in Baltimore, Md., last week, aged ninety-four

years. Dr. Wiener was a prolific writer, and one of his plays had the honor of presentation before German royalty.

Dr. VERNON C. CULPEPPER, of Portsmouth, died at Norfolk, Va., of paralysis. He was fifty-two years of age and belonged to a family of distinguished physicians. He leaves a widow, a son, Dr. James Culpepper of the University of Virginia, and a daughter, the wife of Dr. Stanley Graves, of Norfolk.

Dr. STEPHEN LETT, one of the founders of the Guelph Homewood Sanitarium, and over which he had charge up to 1901 when he was attacked with paresis, died in that institution on October 11. He was born in Ireland, in 1847, but took his medical course at Toronto University, from which institution he was graduated in 1879.

Dr. ELIZABETH IRWIN, of No. 153 East Forty-seventh Street, New York, whose charitable advice among the poor persons of her acquaintance extended through the years of her practice, died last week from the effects of an operation performed three weeks ago. Dr. Irwin was a graduate of the Eclectic Medical College in 1890. She was associated with the Eclectic and Beechonian dispensaries.

Dr. THOMAS ADDISON JENKINS died last Wednesday of consumption, at the home of his father, Dr. Joseph A. Jenkins, 271 Jefferson Avenue, Brooklyn, in his thirty-third year. He contracted the disease six years ago while taking a post-graduate course in the Nursery and Children's Hospital, Manhattan, and vainly battled against it by a four years residence in Denver, Colo. He was a graduate of Princeton College and Bellevue Medical College, and was unmarried.

DEATHS IN THE PROFESSIONS ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Edward Sas Karczynski, Professor of Medicine in the University of Cracow; Dr. Ludwig Winternitz, Physician to the Rudolfstiftung Hospital, Vienna, aged fifty-two years; Surgeon-General H. Schafer, Director of the Charite Hospital, Berlin, aged sixty-five years; Professor Alfred Schaefer, of the Anatomical Institute of the University of Breslau; and Dr. Kohlschutter, Professor of Internal Medicine in the University of Halle.

Dr. FRANK BULLER, a noted oculist and aurist of Montreal, died in that city on October 11, aged sixty-one years. He was professor of ophthalmology and otology in the medical department of McGill University, a position he had held since 1883. He was a member of the Ophthalmological Society of America, and a life member of the Ophthalmological Society of the United Kingdom. He was graduated in 1869 from Victoria University, then situated at Coburg, Ontario, and was for seventeen years ophthalmologist and aurist at the Montreal General Hospital, which he resigned a few years ago to accept a similar position on the Royal Victoria Hospital.

SPECIAL ARTICLE.

THE HERTER LECTURES ON DIABETES.^{1,2}

BY PROF. CARL VON NOORDEN,

PHYSICIAN-IN-CHIEF TO THE CITY HOSPITAL, FRANKFORT-A.-MAIN, GERMANY.

FIRST LECTURE, OCTOBER 9, 1905.

IN studying diabetes mellitus one is confronted with an extraordinary number of new problems. In this disease is to be recognized a chronic condition which

¹ Abstract of Course of Lectures on Diabetes Mellitus.

² Delivered before the University and Bellevue Hospital Medical College, New York.

is far different from the temporary glycosurias, although the causes of both may be the same. Besides the ordinary alimentary glycosuria, there is a form occurring during lactation, in which the excessive amount of milk sugar formed is taken up by the blood and excreted by the kidneys. In every 1,000 parts of the blood there is one of sugar, most of which is grape sugar. It is probable that the greater part, if not all, is in loose combination with albuminates in lecithin. This combination is of important physiological significance, sugar itself being rapidly diffusible, while the compound is not so. There is a choice of any one of three theories to explain the origin of diabetes: (1) An abnormally loose combination of sugar in the blood; (2) a loss in the impermeability of the kidneys to sugar; and (3) an abnormally rich amount of sugar in the circulating blood.

The first two are of minor importance. The hypothesis of Kolisch assumes that there occurs in the blood a combination of grape sugar and lecithin, which he terms jecorin. To this the kidneys are impermeable. In diabetes there is an abnormal amount of free glucose in the blood, dependent on an insufficient fixation. The theory has been abandoned, but it has not yet received its death-blow, and is capable of overhauling and revival. In considering the alterations in the permeability of the renal filter, one first thinks of the glycosuria following the administration of phloridzin. This continues as long as the drug is administered. Death may occur from the great loss of sugar, with symptoms of diabetes. But the difference between the true diabetes and phloridzin glycosuria is that in the former the sugar-content of the blood is above normal, while in the latter it is less than normal. Diseased kidneys react more slowly to the administration of phloridzin, also excreting less sugar. It is undecided whether phloridzin diabetes is due to a greater permeability of the kidneys or to an increased excreting activity of the renal epithelium. Diuretin and caffeine also produce glycosuria, but do so in a different manner, acting only in the presence of a diet rich in sugar, and a subsequent hyperglycemia. Of late an attempt has been made to distinguish a form of renal diabetes due to diminished permeability of the kidney from disease. But in fact when chronic nephritis complicates a case of diabetes the intensity of the glycosuria diminishes. It is now generally recognized that hyperglycemia is the real cause of diabetes. The kidney is only permeable to sugar when the percentage of the latter in the blood is above certain limits. According to recent observation the limit is 1 to 1,000. In diabetes the proportion is about 3 to 1,000, and may reach 7 to 1,000. Hyperglycemia occurs in all kinds of glycosuria, with the exception of that due to phloridzin. There is, however, no exact numerical relationship between hyperglycemia and glycosuria, as shown by Pavy, Naunyn and myself. One may even have a high sugar-content in the blood and a low content in the urine. In the beginning of diabetes there is a pronounced glycosuria without a pronounced hyperglycemia, but in the later stages of the disease an apparent compensation of the kidneys occurs, and hyperglycemia is apt to be more pronounced. The experimental glycosuria produced by Claude Bernard's puncture of the floor of the fourth ventricle lasts for several hours, at the end of which time the glycogen has disappeared entirely from the liver and almost so from the muscles. The

most important fact in connection with this form of glycosuria is that the source of the sugar is the glycogen in the liver and muscles, whether or not the vaso-motor nerves are the means of the transformation. Besides puncture of the fourth ventricle, other causes lead to the same form of glycosuria. They are injuries to the nervous system, narcotics, caffeine, throbromine. There are cases that may be excited by colic, or by the administration of nitrobenzol, phosphorus, etc. It has been contended that these are cases of masked diabetes. The neurogenous form is different from the ordinary variety, in which there are different types, benignant or malignant, acute or chronic. It is doubtful if real diabetes is related to the nervous form of Claude Bernard.

There are a large number of interesting points connected with the subject of alimentary glycosuria. The excessive ingestion of sugar, if occurring slowly, leads to the formation of fat; if rapidly, to the excretion of the excess of sugar in the urine. What are the limits for the ingestion of carbohydrates without the production of glycosuria? For starch there is no limit. Even if 400 gms. are taken in twenty-four hours no glycosuria results. The reason for this is that the digestion of starch takes place so slowly that the storage power of the liver keeps pace with it. The limit for glucose is 200 gms.; for levulose, 140-160 gms.; cane sugar, 150-200 gms.; milk sugar, 120 gms.; many people cannot take even 60 gms. of the latter without its appearance in the urine. As regards maltose, the intestine splits the greater amount into glucose; a ferment in the blood splits the rest. Some persons can tolerate all kinds of sugar but maltose. A large quantity of this is contained in beer. This explains the frequent occurrence of glycosuria in beer-drinkers, on account of the deficiency in the maltose-splitting ferment. The pentoses have a low limit; when 30-50 gms. are administered almost half appear in the urine. A few people regularly excrete pentose, although they take none of this or of its precursors in their food. Pentosuria, which is frequently a family peculiarity, is due to some metabolic anomaly, and is of practical importance from the fact that it may be confounded with ordinary diabetes. The above represent forms of physiological alimentary glycosuria, which is more apt to occur in certain diseased conditions. In the normal individual if 100 gms. of grape or fruit sugar dissolved in tea are taken as a test breakfast, none will appear in the urine. But glycosuria will occur after this test breakfast in certain nervous diseases, in temporary disorders of the pancreas, and in liver diseases. The first class include neuresthesia, acute diseases of the brain, paralyzes, etc. It is supposed that in all these cases the "sugar center" in the medulla is in a condition of increased excitability, as the result of which the liver cells cannot store up sufficient sugar in the form of glycogen. The second group are the result of sub-normal conditions of the pancreas, by virtue of which the glycogen-storing capacity of the pancreas is likewise impaired. The alimentary glycosurias occurring in severe febrile diseases and in alcoholic intoxication, indicate a toxic disturbance of the pancreas. The alimentary glycosuria of acute infections differs in essential points from that associated with liver disease; it is more marked; of the 100 gms. ingested, ordinarily 2 to 5, and sometimes 10 to 20 grams of sugar appear in the urine. In alcoholism and fever one has to do with a dis-

turbance of the pancreas just as in diabetes, but the former is of slighter degree, and the patient recovers from it. The alimentary glycosuria of Graves' disease may be the outcome of the relationship between the pancreas and thyroid, but since Graves' disease is followed by nervous disturbances, one may attribute the glycosuria to the latter. In the third class of cases one may recognize an "insufficiency hepaticque." In individuals suffering from liver disease, such as cirrhosis, atrophy, obstruction to biliary flow, it is easy to produce an alimentary glycosuria, particularly if levulose be administered, when of 100 grams fed, from 1 to 20 will be found in the urine.

SECOND LECTURE, OCTOBER 10, 1905.

The hyperglycemia and glycosuria of diabetes are the result of a diminution of the sugar metabolism. The defective formation of glycogen is the cause of the hyperglycemia. The amount of sugar used by the muscles is dependent upon the previous formation of glycogen. There are other pathological factors intimately connected with the production of hyperglycemia and glycosuria besides the disturbance in the storage of glycogen, for if it were only the latter there would be a decrease in the glycosuria by an increase of muscular work. But muscular work takes place at the expense of other materials besides glycogen, namely fats and proteids. In a diabetic who as the result of his usual daily work would consume the equivalent of 50 grams of sugar per day, the ascent of a mountain 600 meters high would cause the oxidation of 80 to 100 grams of carbohydrate. One would accordingly expect a great diminution in the glycosuria. But this is frequently little if at all reduced. It is erroneously stated in some text-books that the diabetic should take much exercise, so as to lessen the output of sugar. This may possibly occur in the mild cases, but does not in the ordinary cases. The combustion of sugar is not increased by muscular work. Food-stuffs are not assimilated as free molecules, but must enter into firm combination with the protoplasm of the cells. The assimilation of sugar does not take place until the polymerisation of glycogen from the hexoses has first occurred. In diabetes this important connecting link is wanting, namely, the fixation of glycogen in the cells. The tissues, and especially the muscles, of diabetics cannot utilize the carbohydrates because the sugar has not been transformed into glycogen. Levulose may be stored as glycogen even by diabetics, and is thus more thoroughly utilized than is glucose. Von Mering and Minkowski first established the fact that depancreatized dogs can form glycogen out of levulose, although not from glucose. The respiratory quotient, or ratio between the carbon dioxide given off and the oxygen taken in, is raised by a diet of carbohydrates or by exercise. In severe diabetes the quotient falls, showing that the carbohydrates pass unused to the working muscle. In diabetics fed on levulose the respiratory quotient rises, showing that the latter is partly utilized.

Three facts of great significance are observed after feeding diabetics with levulose, namely, a diminution of the glycosuria, a storage of glycogen, and a rise of the respiratory quotient. The most important peculiarity of the diabetic condition is that the liver and muscles have lost the capacity of taking from the blood circulating glucose and storing it up as glycogen. There is also a loss in the

capacity of burning up carbohydrates, for the natural fuel is glycogen and not glucose. The sugar remains in the blood-stream; hence the hyperglycemia and the glycosuria. The capacity possessed by diabetics of utilizing glucose is not unlimited. In severe diabetes this is lost. Sometimes in severe cases of diabetes there appears spontaneously in the urine besides glucose, levulose, even when the food contains neither levulose nor other carbohydrate. These cases are of grave prognosis. What is the explanation of this spontaneous levulosuria? In the healthy body, levulose is formed, but it has a brief existence, being readily converted into glucose. In severe diabetes this conversion may not take place. There are occasionally cases of spontaneous levulosuria with glycosuria. This condition must be placed in the same category with spontaneous pentosuria, and is evidently the result of the lack of a certain ferment in the body. The failure of diabetics to make sufficient use of grape sugar is much more serious. All carbohydrates go through the grape-sugar stage. On what does the deficient formation of glycogen depend? The answer to this question will solve the riddle of diabetes. One may first turn to the pancreas. The diabetes following complete excision of the pancreas has every feature of true human diabetes. The experiments originally performed on dogs by von Mering and Minkowski have since been performed with similar results on a large series of other animals, although in birds there are certain peculiarities. In these cases levulose is still utilized by the body to a large extent, and a large part of the sugar is formed from proteid. The symptoms are the same as those of the severe form of diabetes. If 20 per cent. of the pancreas is allowed to remain, only slight diabetes results, and then provided the diet contains carbohydrate. If over 20 per cent. of the pancreas is allowed to remain no diabetes occurs. Numerous hypotheses have been advanced to explain the origin of pancreatic diabetes: (1) The normal pancreas produces an internal secretion, the presence of which gives rise to the elaboration of the sugar in the blood. (2) Lépine maintained that the amount of glycolytic ferment in the blood diminishes after extirpation of the pancreas and in diabetes. It has been lately decided that Lépine's theory is not sufficiently accurate. There are glycolytic ferments in the blood, but their action is feeble. The difference between normal and diabetic blood is slight if any. It is a fruitless quest to seek in the blood the cause of diabetes. The tissues are the seat of the decomposition of sugar. (3) According to Cohnheim's hypothesis, neither the muscle-juice alone nor the pancreas alone brings about the decomposition of sugar, but both together cause glycolysis. The so-called "activator of the pancreas" furnished by the muscles is heat resisting. This theory has been shattered in my laboratory. If the muscle-juice is kept free from bacteria it will not activate the pancreas. (4) Von Noorden's theory: The pancreas supplies to the blood some substance, possibly a ferment, which builds up or breaks down glycogen. It might be an antiferment, preventing a too rapid destruction of glycogen. Which of these it is cannot yet be definitely decided. The fact that the diabetic can still form glycogen shows that it is a question of the formation of glycogen from glucose, and not of a too rapid destruction. Levulose will give a more stable form of glycogen. This hypothesis is a stimulus for future work. It differs from

those of Cohnheim and Lépine in that the latter are concerned with anomalies of glycolytic ferments, while the former is concerned with anomalies of glycogenic or diastatic ferments. It is not the breaking down of carbohydrates that is effected, but rather the synthesis. The disturbance of fat formation in pancreatic diabetes is a very important subject for consideration. If diabetes consisted only in a disturbance of the carbohydrate metabolism there would be no other untoward results than those seen in an individual fed on excess of carbohydrates. The removal of the pancreas not only prevents the oxidation of the carbohydrates, but also the formation of fat from the latter. The formation of fat from carbohydrates does not occur directly from glucose, but through the intermediation of glycogen. In severe diabetes the combustion of sugar and the formation of fat suffer together. In a considerable number of cases of diabetes in the beginning the sugar-consuming capacity is impaired, but the synthesis of fats continues. Under such circumstances the working cells are inundated by sugar, but cannot utilize it. Tissue-hunger results, with increased appetite and a large intake of food. There are other cases in which the capacity to disintegrate sugar and synthesize fat are both simultaneously impaired. This is the common form. There is another class of cases in which the combustion of sugar is at first not impaired, but not so with the synthesis of fats. There are cases of obesity without glycosuria, *i.e.*, cases of diabetes marked by obesity, the former developing later. These cases of obesity with super-added diabetes represent the common form of diabetogenous obesity. The hypothesis of von Noorden is supported by the views of Pflüger. The close connection between diabetes and obesity is not enigmatical. There are obese people who are theoretically diabetic, developing the glycosuria after as much as ten years. Some obese people exhibit a marked alimentary glycosuria on 100 gms. of glucose. They later show true diabetes. It is important to frequently test the urine of obese patients. As to the processes in the pancreas that underlie diabetes; in spite of numerous autopsies, the anatomical alterations in the pancreas in severe diabetes are exceedingly slight. In the past few years the conception has arisen that the pancreas consists of two independent glands, one furnishing the digestive secretion and the other consisting of solid ductless masses of cells, the islands of Langerhans, furnishing a substance essential for the metabolism of carbohydrates. Opie was the first to lay special stress on this fact. These two glands may degenerate independently of each other. The speaker has seen cases of severe diabetes in which the islands of Langerhans were not visibly affected. It is now gaining ground that the islands of Langerhans are only stages in the development of the glandular substance. It is too early to form a definite judgment. It is evident that severe disturbances of chemical functions may occur without impressing any change on the anatomical structure. The changes are really in the intracellular chemical mechanism.

(To be Continued.)

Anniversary at the Academy.—On November 2 an anniversary meeting will be held at the Academy of Medicine, to which all the practitioners of the city are cordially invited. Several interesting addresses are expected, among them one by Dr. A. G. Gerster.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Twenty-second Annual Meeting, held at the Academy of Medicine, New York City, October 16, 17, 18 and 19, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

FIRST DAY—OCTOBER 16TH.

THE session of Monday afternoon, October 16, was occupied with the reception of the reports of the Committees, including the President's report, and that of the Nominating Committee. The report of the Nominating Committee was adopted, and the following officers were elected for the ensuing year: President, Allen Arthur Jones, of Buffalo; Vice-President, Ernest Schmid, of White Plains; Treasurer, William G. Le Boutellier, of New York; Secretary, Charles I. Redfield, of Middletown. The Chairman of the Committee of Arrangements, F. W. Loughran, of New York; on Publication, Roy D. Carlyle, of New York; on Legislation, E. Eliot Harris, of New York; on Library, Alexander Lambert, of New York; on Public Health, Alvin A. Hubbell, of Buffalo; on the Nominating Committee, Wisner R. Townsend, of New York.

The revision of the By-Laws, which were proposed last year and, according to the constitution, were laid over until the present year to be acted upon, were adopted. A communication to the President showing that Dr. Everard D. Ferguson, of Troy, was ill and unable to attend the meeting, it was proposed that a telegram of condolence be sent to Dr. Ferguson, who has always displayed the most tireless and unselfish efforts for the good of the Association.

Under the head of New Business, two important matters of legislation were placed before the Society by the Chairman of the Committee on Legislation, Dr. E. Eliot Harris, of New York. He suggests that a bill be drawn up abolishing the office of coroner in New York, and another to establish a single examining board for all physicians who are to have the legal right to practise medicine in New York State. The existence of the present trio of boards leads to inevitable and unceasing attempts to secure further examining boards, for all forms of quackery to the no small annoyance of already existing medical institutions, and requiring constantly renewed efforts to keep them from slipping through the legislature owing to the use of influence of various kinds.

SECOND DAY—TUESDAY, OCTOBER 17TH.

Amalgamation Voted For.—The main subject for action at the business meeting on the morning of the second day was the question of amalgamation. After the statement by Dr. Wisner Townsend, the Chairman of the Committee having the matter of amalgamation in hand, Dr. Kauffman, of Onondago, declared that there now seemed to be no longer any reason for opposition to the amalgamation of the New York State Medical Association and the Medical Society of the State of New York. Last year it was on his appeal to the courts that amalgamation failed. As the result of that appeal, however, the medical societies of this State have been put on an even footing quite different from that which they occupied before. The delay was a source of annoyance, but has been of lasting benefit.

Dr. Bryant, the President of the Medical Society of the State of New York, and a former president of the State Medical Association, was then asked to address the meeting, and declared that the purposes that every

honest, zealous member of the New York State Medical Association desired would be accomplished after the amalgamation. There was no reason to think that in the absorption in the greater body there shall be any loss of professional dignity or professional enthusiasm and sense of duty. If Dr. Ferguson, who unfortunately is absent because of illness, were present, he would re-echo his sentiments, for he and Dr. Bryant have talked them over in recent months.

Dr. James G. Orten, of Binghamton, an ex-President of the Medical Association of the State of New York and a man who was enrolled as a member of the Medical Society of the State of New York some fifty years ago, said that he would be glad to be re-enrolled in the old medical society so rich in traditions of what it has accomplished for the profession of this State.

The resolution as to amalgamation was then put to the house, and as it would be necessary, for legal purposes when the amalgamation question comes before the courts, for a roll-call to have been held, this was the method of procedure. Altogether 1,814 members of the Association have a right to vote. Of these 1,517, either personally or by proxy, voted "Aye," or in favor of amalgamation. Two voted "Nay." Two hundred and ninety-five members did not vote at all. The roll-call took two hours and a half to complete, and is absolutely legal in its formality.

At the afternoon session Dr. Suzuki, the Surgeon-General of the Japanese Navy, was introduced to the Society, and it was promised that he would be present to make an address at the dinner on Wednesday night. In a few words he thanked the Society for their reception, and expressed his gladness at being present.

Reform in Army Medical Service.—Dr. Louis Seaman then arose to a question of privilege and asked to be allowed to present a set of resolutions. He said that it was appalling to think what would come to our country if it should become engaged in a serious war with any important power under the present conditions of our Army and Navy medical service. An example of what might be expected is to be found in the actual occurrences of the recent Spanish-American War. In that, fourteen men were sacrificed to disease and illnesses of various kinds for every one that was killed in battle. Recent figures obtained direct from the Surgeon-General's office in Washington confirms these statistics in every way. It is the system, however, that is at fault and not the men whose work is rendered negative by the old-fashioned régime under which they must work. [The resolutions that Dr. Seaman presented were adopted unanimously, in practically their present form, at the Military Congress held in St. Louis last year.]

Suggested Improvements.—It is suggested that the government be informed that according to a resolution of the New York State Medical Association, the Army medical service of this country should be improved, so as to make it the equal of that of the other great nations. In addition to this the resolutions ask that the subjects of sanitation and hygiene be made a part of the regular compulsory course at Annapolis and West Point, and that the Army and Navy cadets be asked to stand as severe an examination in them as in other branches, in order to obtain their necessary standing.

Presidential Address.—According to the new by-laws adopted by the Society at the first meeting for this year the President's address is placed on the afternoon of the second day, instead of at noon on the third day as heretofore. Accordingly, Dr. Goffe's address on medical organization was taken up.

Cooperation Needed.—Dr. Goffe declared that at the present moment all dependency of human effort is toward cooperation and concentration. Combinations of all kinds have taken place of the old-time competition that used to be supposed so necessary. The medical profession needs this cooperation more than others and yet has less of it. As it has been well expressed, there is need to cease to fear a fellow physician, but rather depend on him. With reunion in New York this will be still more easier than before. While the New York State Medical Association loses its name, the Medical Society of the State of New York adopts its organization. This method of organization, adopted first quietly in Connecticut and then in Alabama, was taken up and developed by the New York State Medical Association and then adopted by the American Medical Association. It makes the county the unit of organization. Just as in the State the family is the unit, so here those who are intimately in contact with one another are made the judges of the fitness for membership of each individual doctor. It is supposed that social features shall be a part of all the meetings, and this is provided for in the constitution.

Directory, Journal and Malpractice Defence.—Dr. Goffe said that these three features of the New York State Medical Association should be preserved. A medical directory does more to do away with fake degrees and false pretenses than any other simple method at hand. The journal can regulate the vexed questions of proprietary remedies, and in this matter New York should take a lead. Malpractice defense has proved a valuable feature. Malpractice suits are on the increase and insurance against them in insurance companies is worse than useless. Companies are conducted for the purpose of making money, and a settlement is often cheaper than to fight the suit. As a consequence the physician often has to pocket his disgrace and consequent loss of professional reputation. The causes for malpractice suits are ever becoming more trivial. One surgeon was sued recently for having given advice against the removal of a fibroid tumor. Another was sued because of pressure sores produced by a plaster-of-Paris bandage. Cooperative defense is the only remedy for this. If eighteen hundred members of the State Medical Association supported these features how much easier would it be for seventy-five hundred members of the united organization?

SCIENTIFIC BUSINESS.

The first paper of the scientific session was read by Dr. Morris Manges, of New York, on the abrupt onset of typhoid fever.

Frequency and Types of Abrupt Typhoid.—Dr. Manges said that the form of typhoid fever with abrupt onset is much more common than has been supposed, and as it is likely to be severe and needs treatment early it is necessary the diagnosis should be made at the earliest possible moment. Dr. Curschmann, of Leipzig, called attention to the whole subject of the abrupt onset of typhoid fever on the occasion of a rather sudden death in the royal family of Hesse not long ago. In Dr. Manges' experience and according to the records of Mount Sinai Hospital about 10 per cent. of all typhoid cases begin abruptly. This is, of course, not a new feature of typhoid fever, but has been known for a long time. Before the middle of the nineteenth century a French writer called attention to it, and it is of frequent mention in French articles on typhoid fever. Pepper and Stengel called attention to it in this country.

Causes of Abrupt Onset.—The causes of the sudden onset of the symptoms of typhoid fever in these

cases seems to be the silent progress of the bacilli until all resistance is overcome, when the organism gives way or a secondary infection which favors the course of the disease. There are two forms: the first is the genuine abrupt typhoid fever, and the second the apparently abrupt. These latter cases are the walking typhoid cases which are so much more common than they used to be thought and which frequently are not seen until hemorrhage or perforation or some other fatal complication has set in, and the treatment is hopeless. Because of these cases typhoid fever is classed in the English mortality records among the causes of sudden death. The real abrupt typhoid fever cases, however, show no symptoms at all until there is a fulminant giving way to a severe infection.

Types of Abrupt Typhoid Fever.—Cases of paratyphoid fever are usually of sudden onset and must be carefully distinguished from true typhoid fever. The most common type of sudden onset takes the form of typhoid meningitis. Sometimes it is extremely difficult to judge just what the meningitic symptoms are due to. Dr. Manges has found, however, that it is not so difficult to recognize the difference between cerebrospinal meningitis and typhoid meningitis if the leucocyte counts be made. In cerebrospinal fever the leucocyte count is high; in typhoid it is low. Pleurotyphoid and pneumotyphoid are often abrupt in onset. Not infrequently these are taken for tuberculous pneumonia. Pain is not an infrequent symptom of abrupt typhoid. This may be either of the abdominal or of the cranial variety. In the abdominal cases of pain there is likely to be a danger of mistaking the case for appendicitis. Usually, however, the temperature is higher than it is in appendicitis, and the pulse is lower. Sometimes it happens, of course, that these two diseases run together. The Widal reaction is the best possible diagnostic sign in these cases, but, of course, it is sometimes delayed so long as not to be of use. In one case seen recently the Widal reaction was present at high dilutions, but it was not present at lower dilutions. Two days after a consultation, at which it had been almost completely decided to operate, the rose spots of typhoid and the enlarged spleen were recognized.

Pain in the Head.—Typhoid fever always begins with a severe headache, but in some patients this becomes of so violent a character as to make the diagnosis of some local pathological condition within the cranium. Sometimes meningitis is suspected. In a case recently reported from a neighboring city the headache was so severe that some sinus trouble was suspected. A specialist was called who drained one of the frontal sinuses. No relief was afforded by this, however, and so on the following day the other frontal sinus was drained. Not long after some critical signs of typhoid fever developed.

High Temperatures.—Many of the sudden cases of typhoid fever develop very high temperatures. These are apt to be fatal; fortunately they are not very frequent. Cases with temperatures as high as 100° F. have been reported not infrequently. Dr. Manges saw one case not long since in which the temperature rose to 111° F. just before death. Typhoid fever of the hemorrhagic type is likely to be of abrupt onset and to be brief and fatal in character. It is sometimes mistaken for typhus fever. Sharp, hard chills at the beginning of typhoid fever occur in about 2 per cent. of the cases; usually there is some chilliness, but not a severe chill. Typhoid fever of the renal type is likely to be sudden and is not as hopeless as might be thought. In a recent case the illness was very sudden, the urine was full of albumin and presented many casts. It was considered

to be a case of nephritis with temperature. When the temperature came down, however, the urine cleared up. A relapse of the fever brought back the renal symptoms, and only then was the Widal reaction found.

Secondary Infections.—When grip and typhoid are combined the onset is likely to be sudden. Sometimes the patient seems to run through a regular attack of the grippe, and then develops a symptom of typhoid, but in some the typhoid declares itself at the beginning and runs a severe course. A laboratory worker who by mistake swallowed a culture of the typhoid bacillus had an attack of the disease with sudden onset just seven days later. Individuals who are under severe physical or mental exertion are likely to have their typhoid abrupt.

Predisposition to Sudden Typhoid.—Dr. Kohn, of New York, in opening the discussion said that in some people there was a predisposition of the symptoms, which marked the suddenness of the onset. In one case the patient had suffered from an obstinate headache for a long while, and this suddenly became so severe as to suggest meningitis. It is not easy to tell these cases of sudden onset, for the rosella is uncertain, the spleen may be too soft for palpation, or the tympany present may obscure its size. Even the tongue may not be that of characteristic typhoid. There is, however, something about the look of the patient that suggests a typhoid infection.

Dr. Stockton, of Buffalo, said that whenever typhoid fever selects a special organ for its attack, then the symptoms of its presence are almost sure to announce themselves suddenly.

Groups of Cases.—Dr. Moriarta, of Saratoga, said that in a recent group of cases of typhoid fever, seen in Saratoga, all of them were of sudden onset. The patients consisted of all the occupants of a hospital, four nurses, two orderlies and three patients. Many of them were attacked differently, but all of them had no prodromal symptoms. In two of the cases there was so much abdominal pain that they were thought to be appendical. One of them was decidedly hemorrhagic in character and ran a severe course. All of them had slow pulses. The pulse did not rise above 85, even with a temperature of 103° F.

Dr. Manges, in closing the discussion, said that the peculiar expression of these patients often suggest typhoid when there is no definite evidence for it. The Widal reaction is the best single symptom. At Mount Sinai Hospital they have never been misled by a positive Widal. It always has meant positive typhoid fever diagnosis.

Pseudo Rheumatism.—Dr. James J. Walsh, of New York City, read a paper on lumbago, sciatica and pseudo rheumatism. He said that the affections that served best to keep alive certain forms of quackery were the so-called chronic rheumatisms. Unfortunately the association of the word rheumatism leads to the use of the salicylates. Now these are coal-tar products and have a distinct tendency to cause deterioration of red blood cells and to inhibit the action of the blood-making organs. They will stop pain for a moment, but the later condition of the patient is worse than the former. Some old prominent politicians in certain States, treated in this way by regular practitioners, have finally gone to irregular practitioners of medicine of various kinds, and by means of massage, suggestion, liniments of various kinds and passive movements have been relieved. As a consequence they have been ready to use their influence with the legislatures of their States to obtain the passage of a law legalizing the passage of these irregulars. If the diagnosis of these cases were

properly made, often the rational treatment would at once suggest itself.

Lumbago and Sciatica.—Most of the chronic pains called rheumatism are connected with some occupation in which certain groups of muscles are used much more than others. For instance, tailors who stoop over and use their lumbar muscles, and heavy lifters as the laborers in iron foundries, are the most common subjects of lumbago. In these cases the presence of any toxin in the blood is likely to produce a condition of lowered nutrition in overused parts, which soon gives rise to fatigue and then to aches and pains. In sciatica it is the man who bends at the knee considerably, as, for instance, the shoveler, or the lifter who does not stoop over for heavy objects, but bends his knees and lifts in that position. Very many of these patients cannot continue at their occupations after they have passed a certain period of life. Their nervous and muscular system is not built in such a way as to permit them.

Toxic Conditions.—The presence of any toxin is likely to be reflected in the nerve, the muscles of which are most used. The painter gets his wrist-drop mainly because he uses his wrist in painting more than any other set of muscles in his body. The alcohol drinker of sedentary occupation uses certain muscles of his lower leg whenever he walks, and these are the first to suffer because practically the only severe exercise that he takes is that of carrying his own body by the nerve impulses sent through the lower leg. These considerations help to set the cases of so-called chronic rheumatism in the various categories of neuritis, occupation neurosis and incapacity to continue certain coordinate movements beyond a limited extent which is such a characteristic feature.

Dr. R. H. Gibbons, of New York, said that the salicylates do not prove so harmful to red blood cells if they are made directly from the willow and not from the coal tar. Salicin, for instance, produces none of the bad effects. In Dr. Gibbons' experience not a few of the so-called chronic rheumatisms are really due to infection by the gonococcus and must be treated from this standpoint.

Dr. Walsh, in closing the discussion, said that the salicylates made from the willow directly, or from coal tar, do not seem, according to excellent authorities, to differ from one another at all in their effects upon the human system. It should be remembered that only the amido-phenol derivatives were actively hemolytic.

Experience with Apomorphine.—Dr. George H. Peddle, of Perry, N. Y., said that some recent experience with apomorphine has made him consider it of great value in all convulsive conditions. This is especially true as regards to hysteria and strychnine poisoning. In two recent cases where young women who were pregnant had taken oil of tansy, with severe convulsive seizures as a consequence, the administration of a tenth of a grain of apomorphine had produced an excellent effect, and the pregnancies have not been interrupted. In a case of tetanus, in which it was tried, the convulsive features were much improved, but, in spite of this and the use of antitoxin, the patient died. Dr. Peddle considers that, except in severe cases, not more than one-twentieth of a grain of apomorphine should be employed.

Dr. Dunham, of Poughkeepsie, said that apomorphine can prove very distressing. In a recent experience he gave a tenth of a grain to a man suffering from alcoholism, and found him, a few minutes later, with cold sweat and pulseless. Too much of the drug may very easily be used.

Dysmenorrhea at Puberty and Its Relation to Uterine Tumors.—Dr. Frank Dewitt Reese, of Cortland, N. Y., said that in a number of cases in his experience uterine tumors have developed in young women who had difficulty with their menstruation from its very beginning. The irritation set up by the difficult menstruation seemed to predispose the uterus to the formation of neoplasms. He quoted a number of the qualities in medical literature who held this belief especially with regard to the origin of fibroids. It seems important, therefore, to try and correct this condition and not allow it to continue, with an idea that the patient will outgrow it, or that eventually matrimony should put an end to it.

Methods of Life.—Dr. Mary Gage Day said that there are two classes of sufferers from dysmenorrhea. Some of them suffer from the very beginning of their menstrual life; others suffer only after some indiscretion, and their pain is evidently due to an inflammatory condition. It may be considered that those with primary dysmenorrhea are sufferers from some failure of development of the genital tract. Undoubtedly many of the tumors have their origin in early fetal life. The presence of these, even in small size, may produce the underdevelopment and consequently the dysmenorrhea.

Dr. Robert T. Morris, in the discussion, said that where dysmenorrhea exists all forms of peripheral reflexes should be remedied. Eye-strain is the cause not only of headache, but often of ovarian neuralgia and a tendency to dysmenorrhea. For these the ophthalmologist is needed, but in the same way every kind of possible source of irritation must be removed.

Typhoid Fever in Children.—Dr. Louis C. Ager, of Brooklyn, said that in recent years it has come to be generally recognized that typhoid fever is not nearly so rare in children as used to be thought. During the recent epidemic of typhoid fever in Brooklyn he has had the opportunity to see the disease in a number of children. The course of the affection is not like that in the adult, except that the onset usually seems to be more abrupt and the disease is inclined to run a shorter course. He has not had enough cases to make a serious generalization from, but considers that these features are the most prominent. Two things are of assistance in the diagnosis. These are the early presence of the Diazo reaction and the presence also of an early positive Widal reaction. In this last particular he differs from the opinion expressed by other observers, but this is certainly the result of his experience.

(To be Continued.)

AMERICAN ROENTGEN RAY SOCIETY.

Sixth Annual Meeting, held in Baltimore, Md., September 28, 29, 30, 1905.

The President, Charles Lester Leonard, M.D., of Philadelphia, in the Chair.

Study of Stomach and Intestines.—Dr. Henry Hulst, of Grand Rapids, Mich., spoke of the value of the Roentgen Ray in the diagnosis of diseases of the stomach and intestines, especially in dilatation and dislocation of the stomach. These organs may be inflated, but inflation is often painful, dangerous and inadequate. The best method is to give one ounce of bismuth in a pint of milk, or bread and milk or potato soup. Then two exposures are made: one in the erect and one in the recumbent posture. If the first radiograph was made at noon, a second is taken at six, nothing having been taken into the stomach in the meantime. Thus it is possible to

ascertain the size, position and functional capacity of the stomach. If a good picture of the colon is not obtained in this way, three ounces of bismuth may be injected per rectum. It is essential to have the patient at rest. There must be no breathing, and as little peristalsis as possible. If the subject is very fat, it may be necessary to intensify the screen. This is not particularly objectionable with a sixteen-inch coil, a Wehnelt interrupter and a strong tube placed twenty inches from the skin surface. A plate can easily be made under these circumstances in a medium-sized subject in one second; without the intensifying screen, in three seconds. Ordinarily he has found it better to make the exposure at twenty inches in ten seconds without intensifying screens. Good apparatus and a fair degree of skill is sufficient to secure fairly satisfactory results. The diaphragm is quite indispensable.

Skeletal Development.—Dr. P. M. Hickey, of Detroit, Mich., showed slides demonstrating the bony development of the elbow joint, and emphasized the importance of comparing the injured with the uninjured joint before attempting to make a diagnosis of fracture because the crevices in a developing joint may easily be mistaken for fracture when it really does not exist.

Dr. J. Rudis-Jicinsky, of Cedar Rapids, Ia., said that the anatomy of joints, as given in text-books, should be revised to agree with the Roentgen ray findings as demonstrated by Dr. Hickey.

Dr. Henry Pancoast, of Philadelphia, said that fractures of the head of the radius are far more common than is usually supposed, although only a few cases are recorded in the literature. He has had twenty cases.

Interpretation of Lung Negatives.—Dr. Geo. E. Pfahler, of Philadelphia, said that in order to study the lungs satisfactorily the negative must be made while these organs are at rest. A careful physical examination should precede the Roentgen examination to enable the radiographer to make a correct interpretation of shadows. The greatest field of usefulness of the Roentgen ray in lung diseases is in the study of tuberculosis. Besides assisting in making a diagnosis, it is a most valuable and correct method of recording the lesion at the various stages of the disease. The plate is placed behind the patient, and a second plate in front of the patient so as to give proper value to lesions lying near the surface and to recognize any thickening of the pleura. The patient is placed in the recumbent posture, except when a pleural effusion is suspected, when the patient is placed in the sitting posture. The tube is placed at a distance of 18 to 20 inches from the plate. The time of exposure will vary with the time that the patient can hold his breath. This time should be determined by testing the patient several times before attempting to make an exposure.

Dr. Henry Hulst, of Grand Rapids, Mich., has found that macroscopic lesions of the lungs show very well, also old lesions, but not recent lesions. He never exposes a chest for more than one second in order to get the detail of soft tissues. When lesions are present that the Roentgen ray can record, the diagnosis is positive. A negative diagnosis is only of relative value. It does not exclude the existence of tuberculosis.

Dr. M. K. Kascabian, of Philadelphia, said that by means of stereoscopic pictures it is possible to distinguish consolidation from pleural thickening and from cavitation. It is better to take the picture

with the patient lying on the side and not on the back.

Diagnosis of Aneurisms.—Dr. Frederick H. Baetjer, of Baltimore, gave the points in diagnosis between aneurism and dilatation of the aorta. A pulsating shadow which does not disappear between pulsations is always suspicious. By means of the Roentgen ray a diagnosis of aneurism can be made earlier than by any other method, and the treatment can be begun earlier and it can be planned more intelligently; hence the results are better. Before proceeding with the Roentgen ray examination, the patient should be examined carefully to exclude physical deformities of the chest and spine. The patient is then placed with his back to the tube, the tube being placed at the level of the third rib, and from 20 to 24 inches from the skin surface. A second picture is made from in front. By means of transverse or slightly transverse illumination it is often possible to tell whether the object seen has its attachment in front or behind. This is especially important in determining whether the aneurism springs from the ascending or descending portion of the aorta. By making the examination at two different levels, the composite picture is a true one.

Dr. P. M. Hickey, of Detroit, has found that the most disastrous results followed the disregard of the Roentgen ray diagnosis of aneurism. When mistaken for tumor, an operation always proves fatal.

Presidential Address.—Dr. Charles Lester Leonard, of Philadelphia, reviewed what has been accomplished with the Roentgen ray since its discovery ten years ago, discussed its application in medicine, and indulged in a speculative discussion of the identity of the ray, its chemistry and physiologic action. He said that improvement in technic and better knowledge of the action of the ray and its application will advance its usefulness.

Regulation and Measurement of Therapeutic Dosage of Roentgen Ray.—Dr. E. G. Williams, of Richmond, Va., said that the more superficial the effect desired, the closer the tube should be placed to the skin surface. He has found that about ninety minutes are required to produce an erythema on the surface, with a tube distance of ten inches, spark gap four inches equivalent to the resistance in the secondary circuit, and the milliammeter showing three fourths of a milliamperé. The safety limits are about thirty per cent. less than the number of minutes required to produce a decided erythema. The law of inverse squares helps in regulating the length of exposure and the distance of the tube from the surface. The closer the part is to the tube, the greater is the difference in the effect on the skin and the parts beneath, and inversely, the farther the part is from the part the less is the difference between the effect on the skin and the part beneath. His rule is not to expose in ten days more than the number of minutes required to produce a dermatitis. He usually gives treatments in series of four to six exposures each, in which the sum total number of minutes equals the number of minutes required to produce the desired effect. The tissue is also effected in proportion to the relative number of cells it contains. To measure and record a dose of the Roentgen ray there should be noted the duration of the exposure, the distance of the surface from the platinum disk, the equivalent spark gap and the reading of the milliammeter.

Dr. M. K. Kascabian, of Philadelphia, described

the means adopted by French and German Roentgenologists for determining the dosage of the Roentgen ray, such as the use of fluorescent paper and capsules containing a fluorescent substance.

Technic of Roentgen Treatment of Keloids.—Dr. O. Shepard Barnum, of Los Angeles, Cal., advised using a great abundance of rays from a tube of rather high resistance, and excited by a large coil. That means good penetration and differentiation. The tube should be at least six inches in diameter, and it must have good penetration and not be lacking in definition. He uses a ray which will show the bones in the hand at twelve feet distance. He said that it is better to have the tube too high than too low. The tube distance should be from fifteen to twenty inches, with an exposure of fifteen to twenty-five minutes on alternate days for eight to ten treatments. Then rest ten days or until convinced that there is no dermatitis. Then repeat the process until the tumor has disappeared entirely. The treatment should be pushed for three to six months, and then tapered off until every vestige of the tumor has disappeared.

Present Status of Radiotherapy.—Dr. Gordon G. Burdick, of Chicago, said that there is no longer any question as to the specific field of the Roentgen ray in all forms of acne, lupus, eczema, psoriasis, pruritus, tinea, sycosis, mycosis, mycosis fungoides, senile keratosis, venereal condylomata and hyperidrosis. Among the skin diseases that may be classed as erratic are lupus erythematosus, pigmented vascular nevi, hypertrichosis and acne rosacea. Of the first mentioned about 18 per cent. are cured and about 30 per cent. are improved. He has treated 80 cases of epithelioma involving the skin only, with no recurrence. When the tumor is situated at a mucocutaneous junction it is well to have the glands removed after a period of quiescence has been brought about by the X-ray. He followed this method in 23 cases, with no recurrence after two years. He considered the Roentgen ray sufficient treatment in the great majority of cases. The knife should be used only in such cases where the tumor is situated favorably for radical removal. In cases having the characteristic odor, he invariably anesthetizes the surface, and by means of the galvanic cautery drives into the tissue for a prolonged period of time zinc and mercury ions, following with the Roentgen ray after the separation of the slough. Eighteen cases of carcinoma, treated vigorously with the Roentgen ray, were cured. In fourteen, the tumors and enlarged glands disappeared completely; in four, they ceased growing. All primary cases should be rayed, excluding the knife. He does not believe in the existence of a case of sarcoma that cannot be markedly benefited by a prolonged, mild radiation from an old hard tube, well coated with aluminum, the thickness depending on the individual circumstances existing in the individual case.

Treatment of Carcinoma.—Dr. Geo. C. Johnston, of Pittsburg, said that in carcinoma of the breast the application of a ray of sufficient intensity, for a sufficient length of time, is capable of causing a disappearance of the tumor and carcinomatous cell nests and their replacement by connective tissue, a proliferative, obliterative endarteritis and a sclerosis of the lymph vessels and glands leading from the affected part. A course of radiation not to exceed ten treatments of twenty minutes each, at a tube distance of eighteen inches, is sufficient in the majority of cases to accomplish the desired re-

sult. A tube of fairly low vacuum should be employed, carrying a current not to exceed $2\frac{1}{2}$ milliamperes. On about the fifteenth day after operation postoperative treatment should be begun. Cases of extensive carcinoma may be rayed, operated, rayed again and freed from the disease, providing the surgeon and the roentgenologist co-operate thoroughly. Postoperative radiation is made directly over the wound through the dressings, the length of each exposure being ten minutes; treatment being given every other day for as long a time as may be necessary.

Late Results in Treatment of Sarcoma.—Dr. Wm. B. Coley, of New York, said that facts, up to the present time, fail to show that the Roentgen ray is curative of malignant growths, except those that are located superficially. No patient has yet remained free from a local or general recurrence for three years. The value of postoperative treatment is undetermined. The treatment of sarcoma by the Roentgen ray has shown, in a small proportion of cases, that the tumors decrease in size and even disappear in a few instances. In the small percentage of cases in which the tumor has disappeared, the universal tendency to recurrence and the danger of dissemination of the growth is sufficient reason for not advocating the method, except in inoperable or recurrent cases.

Dr. J. Rudis-Jicinsky, of Cedar Rapids, Ia., believed that the use of Coley's antitoxin precipitated the occurrence of metastases. Drs. Bowen, Stevens, Burdick and others reported favorable results in the treatment of sarcoma with the Roentgen ray.

Dr. Vernon J. Willey, of Ann Arbor, Mich., treats his patients for two to four weeks prior to operation, using a hard, low tube incased in a Friedländer shield, with good result. One case treated entirely with the ray recovered after 42 treatments, with no recurrence a year later.

Roentgen Ray in Carcinoma.—Dr. Geo. H. Stover, of Denver, uses a ray of good mellow quality that will penetrate the tissue. The ray may be allowed to affect the surrounding tissue to a reasonable distance, but should not be placed too near the skin because of rays close to the wall of the tube that are of high destructiveness. All healthy parts should be protected. He rays three times a week for ten minutes each time, tube distance being eight to ten inches. He uses shields on all treatment tubes. He advised Roentgen ray treatment of primary, non-operative and recurrent non-operative carcinomas. Where there is an equal chance between Roentgen and surgical measures, advise operation and ray afterward.

Roentgen Ray in Military Surgery.—Dr. C. F. Stokes, U. S. N., described the equipment employed in naval hospitals and on board ship, and cited a number of cases in which the Roentgen ray was used to good advantage.

Treatment of Leucemia.—Dr. J. F. Smith, of Chicago, added two cases to ten previously reported, and reviewed the results obtained in the entire series. The action of the Roentgen ray seemed to be of two kinds: the local influence on the spleen and glands characterized by inflammatory reaction, if treatment is pushed vigorously, and later by the breaking down and disintegration of gland tissue, and the formation of leucotoxin which either has an inhibitory action on the manufacture of leucocytes by the bone marrow, or it destroys the leucocytes already formed. In no case did the splenic tumor disappear entirely.

With a discontinuance of the Roentgen ray, the disease, at varying periods, returns. Acute cases are not benefited at all by the treatment. Chronic cases respond more rapidly than subacute cases. The probability is that the ray holds the disease in abeyance, but does not cure the patient.

Roentgen Treatment of Hodgkin's Disease, Leucemia and Polycythemia.—Dr. Henry Pancoast, of Philadelphia, emphasized the necessity of careful study of the effects of Roentgen ray exposures on metabolism, particularly in connection with the treatment of the diseases under discussion. He has found that the effects of the Roentgen ray on leucemic tissue are not the same as those on the skin in an X-ray burn or an epithelioma breaking down under treatment.

Technic of Calculus Diagnosis.—Dr. Russell H. Boggs, of Pittsburg, emphasized the necessity of being familiar with the densities that may appear on the plate and being able to interpret them correctly. In over 200 cases examined there were only two unsatisfactory results. The diagnosis from the plate should never be attempted until the plate is perfectly dry. He said that it is not difficult to make a radiograph that will show the calcium oxalate and phosphatic calculi, but if the patient is large, it requires a great deal of accuracy to show the necessary detail and make a correct diagnosis. The Roentgen ray is the most efficient means for diagnosing kidney stones, but experience is necessary in the use of the method to make it valuable. Two radiographs should be taken, and the shorter the exposure the better, because there is then no motion of the parts. When the rays are intense enough to make a picture in less than thirty or forty seconds, and the tube used is so much lower in vacuum, it will give greater detail and differentiation. The radiograph should be made while the patient holds his breath, using a large amount of current with all the inverse discharge cut out. By using a rheostat in series with the primary of the induction coil, the milliampèreage can be kept at a certain point. The bowels are emptied thoroughly first and no food or fluid is allowed for some time before the examination. The tube is placed about two inches from the plate.

Dr. Henry Pancoast, of Philadelphia, called attention to two sources of error in diagnosing kidney or ureteral calculi. First, a deposit of salol in the bowel and the presence of phleboliths in the pelvic veins, both of which give shadows resembling those thrown by calculi.

Dr. J. F. Smith, of Chicago, said that calcareous lymph glands and calcareous deposits in the pelvic ligaments have also been known to complicate the diagnosis of calculi.

Dr. Henry Hulst, of Grand Rapids, Mich., mentioned a case in which a fracture of the transverse process of one of the lumbar vertebræ gave a shadow that was at first mistaken for a calculus until a full history of the injury that caused the fracture was obtained.

Dr. M. K. Kassabian, of Philadelphia, cautioned against mistaking calcified lymph glands around the lower portion of the ureter for calculi. He advised inflating the urinary bladder slowly as an aid to diagnosing stones in the lower ureter.

Dr. Charles Lester Leonard, of Philadelphia, said that when there is a stone in the ureter there is always a passive enlargement of the kidney. That fact is an aid in making a diagnosis of stone in the ureter.

Dr. Sinclair Tousey, of New York, cited a case to illustrate that sometimes the stone is on the side opposite to the one indicated by the clinical symptoms as containing the stone. In such cases the Roentgen ray is of great value in locating the stone. Radiographs for stone should include both kidneys and ureters in order to make such mistakes impossible.

Treatment of Lupus and Rodent Ulcers.—Dr. G. P. Girdwood, of Montreal, cited cases of tuberculous lupus in various stages and of varying duration, one case having existed for thirty-two years. All had been treated surgically and by applications, but without avail. All have been cured by the Roentgen ray, or relieved to such an extent that a cure is almost certain in a comparatively short time. Where dermatitis was produced, healing went on more rapidly than in cases not burned, and it continued to go on without any further treatment. All his cases were treated at a distance of ten inches and for ten minutes at a time. The number of interruptions to the current was about three thousand per minute. The coils used were of the 18- and 30-inch variety; 110 to 220 V.; two to six A.; mechanic electrolytic break; no condenser, in most of the cases; 440-660 Watts.

Treatment of Non-Malignant and Non-Tuberculous Skin Lesions.—Dr. W. S. Newcomet, of Philadelphia, cited cases to show that in most cases of this kind the Roentgen ray is beneficial.

Pathological and Physiological Effects of Roentgen Rays.—Dr. J. Rudis-Jicinsky, of Cedar Rapids, exposed guinea-pigs and rabbits to intense radiation daily, first for ten seconds, and later for ten minutes, with a tube distance of six inches or less. After twenty exposures the guinea-pigs partly lost their hair, and after thirty-four exposures there were two cases of very bad necrobiosis, the condition being aggravated when a very low tube was used, backed by a spark gap of four inches and a very strong current. The longer the procedure was carried out, the lower became the resistance of the animals. Autopsy was done on two animals, and the findings were described at length. There was degeneration in the posterior horns and tracts of the spinal cord gray matter; hemorrhages in the cord; fibrous hyperplasia in the skin and the walls of blood-vessels. Usually after a few exposures, even when the skin is intact, there is found a more or less profuse exudate of a clear, lemon-yellow fluid of a specific gravity of about 1.060, distinctly alkaline in reaction, which crystallizes readily on exposure to the air, and when injected subcutaneously into mice, this fluid invariably produces death within forty-eight hours. It irritates healthy skin, acting as a caustic. With the diminution of this fluid, the healing process begins.

Dr. Geo. E. Pfahler, of Philadelphia, exhibited an X-ray filter consisting of a disk of sole leather about six inches in diameter and four times the thickness of the skin. A piece of pure silver may also be used. This disk is placed directly over the opening in the diaphragm. It effectually prevents tanning or burning of the skin. The leather disk is soaked in water before being used so as to resemble skin as closely as possible. Dr. Henry Hulst uses tinfoil, aluminum or some other substance for a filter, selecting the substance to be used with reference to the effect he desires to obtain. Dr. Geo. H. Stover, of Denver, uses aluminum foil. Dr. F. F. Strong, of Boston, neutralizes the superficial effect of the Roentgen ray

by exciting the Crookes' tube by means of Tesla's high-frequency currents, ionizing the area in the vicinity to be treated. Since he has been using this method he has been able to treat deep-seated tumors effectively without producing a burn. He also demonstrated a unipolar Roentgen ray tube to be used for treating lesions situated on the walls of cavities and for treating the center of tumors.

Officers.—The following officers were elected for the ensuing year: President, Henry Hulst, Grand Rapids, Mich.; Vice-Presidents, Russell H. Boggs, Pittsburg; C. E. Skinner, New Haven, Conn.; E. G. Williams, Richmond, Va., and E. W. Caldwell, New York; Secretary, Geo. C. Johnston, Pittsburg; Treasurer, L. E. Custer, Dayton, O.; Executive Committee, K. Dunham, Cincinnati; P. M. Hickey, Detroit, and J. F. Smith, Chicago.

Chicago was selected as the next place of meeting.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, held October 6, 1905.

Suppurating Mesenteric Cyst, Sinus Six Months after Operation.—Dr. C. A. McWilliams reported the history of a case in which he had, at operation, discovered a large cyst of the relatively rare mesenteric type. The character of the pathological lesions were such that it necessitated an unusually long incision. This favored sinus formation.

Mesenteric and Enteric Cysts, with a Report of a Case of Enteric Cyst.—Dr. James C. Ayer read a minutely detailed paper dealing with the pathology, etiology and treatment of these rare lesions.

Dr. Charles N. Dowd, in discussing this paper, said that cysts have two kinds of interest, a pathological and a diagnostic. Cysts, the type of those which had been discussed by the previous speakers were, in his opinion, rarely diagnosed before operation. They were, however, he said, of sufficient frequency to make them justly enter into questions of differential diagnosis. The etiology, he said, was extremely interesting. Embryonic cysts—by far the most common form—follow the structure of the organs from which they spring with remarkable precision. Dermoids he considered undoubtedly to be of the same origin. He had recently removed an embryonic cyst which had reached from the ribs to the pelvis, pushing the descending colon to the median line.

Dr. W. S. Bickham called attention to the fact that in these rare, but nevertheless reasonably common cases there might be a sudden fatal termination occurring in a patient heretofore considered perfectly well. He gave the history of a man weighing about three hundred pounds in whom there developed suddenly a terrific abdominal pain with almost immediate loss of consciousness. The stature of the patient made physical examination practically negative, and no tumor could be felt in the abdomen. Nevertheless, acting on the inference that abdominal pains, of the severity exhibited by the patient prior to losing consciousness, must have been caused by some gross abdominal lesion, he prepared to operate immediately. Before the operation could be begun, however, the patient expired. On autopsy, a small cyst, about the size of an orange, was found. It connected with the small intestine by an opening which admitted several fingers and which evidently was of long standing.

Dr. Knight, of Hartford, recited the history of a case of mesenteric cyst which had recently occurred

in his consulting practice. The patient was a boy, aged thirteen years, who had for many years complained of stomachache. Upon the occasion of Dr. Knight's visit, the temperature was normal, but the pulse was high. Upon operation, a cyst, $3 \times 4\frac{1}{2}$ inches in size, was discovered attached to the mesentery. There were no adhesions, but a volvulus had occurred proximal to the sac. During the act of untwisting the volvulus, the patient died. There was some ground for believing that the immediate cause of death was fecal vomiting. The specific gravity of the cystic fluid was 10.60. There was no patent connection with the gut. The walls of the cyst were lined with non-ciliated epithelium. Dr. Samuel Lloyd reported a case of a similar nature.

Hernia in Children.—Dr. Edward W. Peterson said that it was generally agreed in the text-books that, except under particular conditions of stress, children under the age of five should not be operated upon for radical cure of hernia; but until that age should be treated by a truss. Lloyd and others, he said, had given much attention to the subject and had become convinced, as a result of their studies, that a large proportion of the hernias treated and nominally cured by the use of supports recurred. This became a matter for serious consideration when one considered that 40 per cent. of all hernia had been shown to occur in children under the age of fourteen years.

Pathology of Hernia.—The author considered that malformation was the essential cause of all forms of hernia, and believed that in time it would be as generally ascribed to a developmental failure as to-day is the case in such lesions as hare-lip or hypospadias. In his opinion the factor of strain was simply the exciting cause. In doing the Bassini, which was the operation of choice in the clinic where his work was done, the speaker said that two points were considered essential: the first of these consisted in splitting the external oblique as high as possible above the pubes, so that, on suturing the wound, there might be an overlapping of the lines; and second, that inasmuch as Lloyd and others had shown that recurrence always took place at the lower end of the wound, special pains should be made to make that region as tight as possible. He closed the paper by stating that he considered it definitely proven that the curability of hernia by operation was assured, regardless entirely of the age of the patient.

Dr. C. N. Dowd, in discussing this paper, said that he regarded it as a very important subject. There was, he said, a small, but indisputable percentage of deaths which was directly ascribable to the operation for hernia. It seemed to him, therefore, wise to weigh the social standing and intelligence of the parents. If these were willing and able to give proper attention and care to the child, they should be given an opportunity to bestow such care before an operation, fraught as it was, with a small but definite death rate, was advised.

Dr. A. V. Moschcowitz said that he had for many years agreed very cordially with the views of the reader of the paper as to the desirability for early operation in children. Recently, however, he had the misfortune to have a hernia develop in one of his own children, and he had not as yet decided to operate. He took exceptions to the statement made by Dr. Peterson that recurrence was at the inner angle of the wound, because he believed very good authority to exist that a very large portion of recurrences were to be found at the outer angle.

Dr. Lloyd said that he considered it established beyond peradventure that recurring hernia escaped at the inner angle. This he considered to be due in all probability to the difficulty of inserting the most internal deep stitch.

Subcutaneous Pelvio-Ureteral Inflammation in Lieu of Ureterectomy after Nephrectomy.—Dr. A. E. Gallant read a short paper with this title. He said that it was much more practical to implant the ureter just beneath the skin rather than below the fascia in all cases where the kidney had been removed and the ureter was blocked in the lower part of its course. In case of cyst formation taking place, this condition was very easily met by the plunging of a knife through the bulging skin. Formerly the evacuation of any accumulated fluids had been attended by considerable difficulty.

CHICAGO ORTHOPEDIC SOCIETY, AND CHICAGO MEDICAL SOCIETY.

Joint Meeting, held May 3, 1905.

John Ridlon, M.D., President of the Chicago Orthopedic Society, in the Chair.

Charcot's Joint.—Dr. M. L. Harris exhibited a patient, thirty-eight years of age, who presents gastric crises, sharp pains in the legs, and ataxia. Upon examination the Argyll-Robertson pupil is found, loss of the tendon reflexes, and areas of hyperesthesia in various parts of the body—a typical case of tabes associated with tabetic or Charcot's joint. Cases of Charcot's joint are comparatively common. He has no pain in this joint. He has been able to move around with this joint, notwithstanding the extensive changes that have taken place, and, were it not for his ataxia, he would still be able to get around, so far as his joint is concerned.

Tuberculosis of the Knee-Joint.—Dr. Jacob Frank exhibited three patients, and said: The three cases which I present this evening illustrate the results that may be obtained in treating a pathologic condition affecting the same part of the human anatomy and caused by the same germ—the *Bacillus tuberculosis*. These three cases have undergone various methods of treatment, depending upon the requirements or indications of each individual case.

Case I.—R., female, aged twenty-nine years, tuberculous family history. She began to complain of pain between the age of eight and nine years. Twelve years ago, when she first consulted me, her left knee was very large and painful; her general condition was very bad. From the appearance of her knee, I thought that she would lose her limb. I decided, however, to try conservative treatment first, which is my rule in all these cases. Her knee was injected with a ten per cent. iodoform-olive oil emulsion, covering a period of two years. The first six months the injections were made every two weeks, and the remainder of the time every four or five weeks. The first injections caused a violent reaction accompanied by pain, and a temperature of 103° F., which necessitated the patient's staying in bed for a week. Three months after beginning the injections the reaction was very slight, and one day in bed sufficed. When the injection was begun the knee measured 24½ inches in circumference. Before the first injection was made a saucerful of fluid was withdrawn from the joint; the second time less fluid was withdrawn. The subsequent injections were not preceded by the withdrawal of any fluid. Although the injections were

continued for a period of two years, signs of improvement obtained after few injections justified my persistency in continuing the treatment. The knee, as you see it this evening, has the same measurement as the normal knee—16 inches in circumference. You see by her walk that she has a useful limb, without much limp, and goes to work daily.

Case II.—Mrs. F., aged thirty-nine years; no tuberculosis in the family. Was operated upon three times for bone disease. The first operation was performed twenty years ago in New York City on the right hand; the second thirteen years ago in Essen, Rheinland, on inner side of ankle, which never healed. Six months later was operated upon in Newark, N.J., on the outside of ankle, which healed completely in six weeks. The left knee was injected three times for a painful swelling, once at the County Hospital, and twice by myself, without beneficial result. The knee was immobilized after each injection with a plaster-of-Paris cast. After removal of last cast, the knee was still painful and swollen.

Operation, December, 1903. A longitudinal incision to the inner side of the joint. The inner tibial tuberosity contained a tuberculous, broken-down focus. The femoral condyle on the same side was also diseased, and contained a tuberculous focus. The diseased bone, with the soft parts, was removed wherever there were any signs of disease. Iodoform-olive oil emulsion, 10 per cent., was injected in different parts of the joint. The cavities were packed with iodoform gauze. The dependent parts were drained with gutta percha tissue. The knee was immobilized with a posterior splint and dressed daily. Packing was removed in five days. In January, 1905, a swelling of the right knee was noticed. During my absence Dr. Feingold treated the knee by removing the fluid and injecting the joint with a 10 per cent. iodoform emulsion. A plaster cast was applied, which was left on for three weeks. The result was excellent.

Case III.—L. M., female, aged ten years. According to patient's statement, negative, so far as tuberculosis was concerned. Previous disease, none. Present illness started with pain in left knee two and a half years ago. The pain was felt in the morning and absent during rest of day. Three or four months later the pain was felt during the entire day, and some swelling of knee noticed. The first physician diagnosed the case as rheumatism. The next physician who saw her, four months after the onset, January 1, 1902, made a diagnosis of tuberculosis and immobilized the knee with a plaster cast, which was left on for four weeks. When the cast was removed, she walked without difficulty for six weeks, when the knee started to swell, the swelling being much larger this time. May, 1902, eight months after the onset, she was taken to Wesley Hospital. The swelling at this time was quite large and very painful. She had night-sweats, fever, and anorexia. The surgeon, who treated the case there, immobilized the knee in a plaster-of-Paris cast, which remained on for two weeks, and cast two, which remained on for three weeks. When the second cast was removed, a brace extending from the hip to the foot was employed. The brace was worn off and on, according to the doctor's directions, until October, 1903, when it had to be discarded on account of severe pain and swelling, which was getting worse.

Patient consulted me January 14, 1904. The left knee was three times larger than the right, and painful. The swelling extended from about three inches below the knee to the upper one-third of femur, was fluctuating, tibia movable and easily displaced. Operation January 15, 1904. A horseshoe incision was made,

flap dissected up, and condyles of femur, head of tibia, patella and entire joint destroyed by the disease. A large amount of pus was evacuated, which undermined the anterior muscles of the thigh, which were already necrotic. The condyles of femur and head of tibia were amputated, patella removed, including about five inches of quadriceps extensor muscles. The entire capsule was dissected away. The bones were not wired. The skin flap was partially closed; extensive drainage, consisting of rubber tubing and gutta percha tissue, was employed. A bracketed plaster-of-Paris splint, re-enforced by a posterior wooden splint, was used, leaving out the knee and points of the drainage exits, to facilitate the frequent changing of the dressings. The wound was dressed twice daily, irrigated, and iodoform emulsion injected through the drainage opening. The stitches were removed at the end of the first week; the tubing replaced by gutta percha tissue in ten days; all of the drainage was out in fourteen days. The patient left the hospital four weeks after operation. Good union was obtained. She wore a light plaster cast for six weeks after leaving the hospital. Her temperature was between 99° and 102° F. for the first week, and was then normal.

It will be observed, from the brief histories of the three cases, that each individual case was benefited by a different line of treatment. The ten per cent. iodoform-olive-oil emulsion, used in case one with good results, failed in case two, where operative interference remained as the only resort. In this case resection of one condyle and tibial tuberosity was essential. In case three complete resection of the knee, including the removal of the patella, part of the quadriceps extensor muscles and the capsule of the joint was necessary.

Tuberculosis of the Knee-Joint.—Dr. L. L. McArthur presented a case of an Italian laborer, twenty-four years of age, single, well-nourished, who was admitted to St. Luke's Hospital on February 13 of this year, complaining of swelling of the left knee, with stiffness of that joint, slight pain in the joint, and tenderness. The history, briefly, was that he fell, striking on the knee, twenty-six months prior to his admission. Since then the knee-joint has been at times tender and swollen, but the patient has been able to work. The swelling has gradually increased. No other joints were ever affected. His previous history is "that he had never been sick," and he did not look as if he had been at the time of his admission to the hospital. He denied any venereal history, and all stigmata of the same were absent.

Examination of the patient was negative, except for the inguinal glands, which were enlarged. The left knee was swollen or distended with fluid, the swelling was somewhat spindle-shaped, extending from about three inches above the patella to an inch below the knee-joint, with some tenderness on the inner side of the joint. The swelling had a boggy feel, was irregular, there were movable small masses. Soft fringes of synovial membrane or rice bodies could be felt with the knee partly flexed, and the tissues pressed over the outer margins of the articular condylar edges. There was no marked atrophy of the muscles below the knee-joint. Two days after his admission to the hospital, six drams of viscid fluid was withdrawn and sent to the laboratory. The laboratory report regarding this fluid was negative. There were no gonococci, no tubercle bacilli seen. The patient was admitted to the hospital under the service of a colleague, and was later transferred to Dr. McArthur. At the end of that month, February, he was put to bed, given iodide of potassium and inunctions over the knee, and partial

immobilization of the joint. After some days there was a slight decrease in tension and in the swelling. The first of March he came into my service, when a careful examination of the joint was made. I found the joint unassociated with increased heat, unassociated with redness, unassociated with marked tenderness on palpation, but some pain elicited on attempting to make motion. There was considerable fluid in the joint, which produced distinct fluctuating tumors on each side of the quadriceps tendon. Inasmuch as there was a laborer to deal with, only twenty-four years of age, and otherwise physically well, but financially poor, it became necessary to decide whether surgical intervention or long-continued fixation treatment should be instituted after a definite diagnosis had been made. As to the question of diagnosis, the joint presenting the conditions such as have been described, I will say we had to reason from the probabilities in the case, by exclusion, not jumping at the diagnosis. We could reasonably exclude rheumatism, malarial infection, syphilis, and the ordinary traumatic affections of the joint from the nervous side, and had necessarily to fall back on the probability of a tuberculous joint. This diagnosis seemed more probable because of the definite rice-like bodies that could be made to slip over the margins of the articular ends of the femur, outside and inside of the patella, when the knee was flexed at right angles. But to be as sure as possible, and act in accordance with the light we had, the fluid was withdrawn, cultures carefully made, as well as careful inoculations made in guinea-pigs with smears, and yet all the pathological findings were negative. Examination of the fluid was made by competent men, also an examination of a small lymphatic gland that developed in the inguinal region of the guinea-pig that was injected was made by Professor Zeit, and found absolutely negative. The guinea-pig was still alive nine weeks after the injection, and yet, with all the laboratory knowledge exhausted, Dr. McArthur was still convinced he had to deal with a tuberculous joint in a man, twenty-four years of age, a laboring man, who had only enough money saved up to pay for his hospital expenses for eight or nine weeks. This question was presented to him: You have either to have this joint excised, as it is tuberculous, or you have to count on a treatment of two years' duration, at the end of which time you may then have to undergo the same operation. Have you enough money to lay off for that length of time, or are you willing to take that time to get well? He said he could only pay the hospital for eight or nine weeks, and that he wanted to get well as soon as he could. Under the circumstances he thought he would rather have the joint excised. He was told that he would probably get well after the operation, with a stiff joint, with which he would be able to get around.

Dr. McArthur exhibited under the microscope some sections which he thinks will prove of interest to those who have not examined such sections of these little rice bodies, and of the papillomatous-like projections from the inner surface of the synovial membrane, in each one of which can be seen three or four or five giant cells with the characteristic arrangement of the nuclei around the margin, probably containing tubercle bacilli when stained for them, so that we have a microscopical demonstration, as the result of operation, that it was tuberculosis, in a man who was without any previous history of disease, who was well-nourished, and who received a slight trauma. He now presents himself to you with a stiff limb, but the limb is in a good position for use, and primary union has taken place. The limb is not absolutely straight, as it was

considered desirable to have a small amount of flexion, but a firm union. It is now fifty-seven days since the operation was performed. In these cases there are several practical points to consider: First, is the patient able to go through that long course of treatment which is necessary if we are going to treat him by fixation? Second, is the patient at the end of that time to be promised that he will not have to undergo operation? Is he not better off by a prompt resection, prompt fixation, and in a condition ready to go to work again? The argument might be used in this particular case that iodoform injections might have been made, and successive injections made, at the end of which time he might have had a limb of normal length and of normal flexion, but one must consider not only the practical condition of the patient, but the economic side of the equation.

Extracapsular Lipoma of the Pretibial Triangle of the Knee.—Dr. Edwin W. Ryerson read a paper with this title, and spoke of the existence of a triangular space between the patellar ligament, top of tibia, and capsule of knee-joint. This space is normally filled with loose fat, which by trauma or inflammation may hypertrophy and limit the motions of the joint. The differential diagnosis is made by the absence of fever, and suppuration, long duration, painlessness in the early stages, extent and character of the swelling. For its removal operation is necessary. He discussed the after-treatment.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held June 12, 1905.

The Vice-President, R. E. Van Gieson, M.D., in the Chair.

DISCUSSION ON THE TREATMENT OF HYPERTROPHY OF THE PROSTATE.

The Radical Relief of Urinary Obstruction Due to Prostatic Hypertrophy.—The discussion was opened by Dr. Lewis Stephen Pilcher in a paper with this title. The question of the hour in this condition, he said, was not catheterism, or electro-caustic incision, but absolute complete removal of the obstructing masses. In 1851, Dr. S. D. Gross had expressed the opinion that the idea of total extirpation was too absurd to be seriously entertained; yet, since the year 1890, this operation had been done in thousands of instances, and the accumulated experience of these cases had demonstrated the following facts: (1) That the removal of the whole or the greater part of an enlarged prostate is a feasible and reasonably safe procedure. (2) That, with rare exceptions, complete healing of the operative wounds takes place, without permanent fistula or stricture. (3) That in the majority of cases, normal power to retain and to void urine is regained. (4) That these results have followed different methods of operative technic. (5) That the degenerations incident to advanced years, and the presence of pre-existing disease of the urinary tract, as well as the exhaustion resulting from long suffering, loss of sleep, and the absorption of septic products, previous to operation, add in many instances a special gravity to operative interference in such cases, and entail a certain hazard of mortality even in the hands of the most experienced, whatever the special method employed. This mortality may at present be estimated at from 5 to 10 per cent. (6) That, as the result of the special con-

ditions presented by particular cases, certain disabilities, more or less pronounced and continued, are not infrequent accompaniments or sequelæ of these operations. These, in the order of their frequency, are (a) sexual impotence, (b) epididymitis and orchitis, (c) partial urinary incontinence, (d) fistulae. Nevertheless, even with these drawbacks, the fulfilment of the supreme indication, namely, the removal of the urinary obstruction, suffices to obscure the presence of lesser evils. In the great majority of cases subjected to total prostatectomy, the ability to empty the bladder spontaneously has been restored and permanently maintained, while the quality of the urine has become fairly normal. Coincidentally, the general health has greatly improved. In a very large proportion of the remaining cases a marked lessening of the obstructive symptoms has resulted, the intensity of the cystitis has diminished, the frequency with which a catheter is required has been lessened, and the facility of its introduction has been increased.

The Choice of Method.—The choice of method must depend upon a full comprehension and weighing of the nature of the prostate and the readiness with which it yields to operative attack, of the anatomical relations which environ it and make it more or less accessible, and of the necessities for after-treatment, whereby postoperative dangers may be guarded against and ultimate perfection of cure secured. At the present time three methods present themselves: (1) Through the bladder by means of a suprapubic section; (2) by the perineum through a limited longitudinal median incision carried into the capsule of the prostate. In both of these enucleation of prostatic masses is effected by finger-tip dissection unaided by sight. (3) By the perineum through a free, transversely curved incision, through which the prostate is fully exposed, followed by systematic incision into its substance, and subsequent enucleation largely under the guidance of the eye. In the first two methods the amount of time required, in favorable cases, is distinctly less, and it is conceivable that in some instances this indication of quickness of execution may determine the choice. Cases characterized by massive gland hypertrophy are the most favorable for the transvesical method; those in which the hypertrophy is moderate, for one of the perineal methods. Those in which there is a marked fibrotic element always require for their satisfactory management recourse to the most open method of attack possible. Cases with massive intravesical growth in which the use of a general anesthetic is contraindicated, but in which operation may still be justifiable under spinal cocainization, may be better attacked through the bladder. A hard, fibrotic prostate should not be subjected to any form of prostatectomy under such conditions. The variety of the hypertrophy present should always be taken into consideration. The prostate is complex in its structure, and it is more correct to speak of it as the prostatic body, rather than as the prostatic gland. We may have glandular, muscular or fibrous hypertrophy predominating, and, according to the ease or difficulty with which enucleation from the capsule can be accomplished, this, that, or the other procedure should be selected.

Dr. Pilcher is of the opinion that, as a rule, for the best fulfilment of all the operative indications, there is necessary the free exposure of the gland by suitable perineal incision; the exposed gland

should be brought down as much as possible into the superficial operative field by the use of suitable tractors, and the removal of the obstructing masses should be carefully and systematically effected under the guidance of the eye as much as possible.

Technic of the Pilcher Perineal Operation.—He then proceeded to give the technic of the operation as he was accustomed to perform it. The successive steps, which were illustrated by a series of large photographs taken during the operation, were as follows: (1) Placing the patient in position; (2) the primary incision, transversely curved; (3) division of the recto-urethral muscle; (4) exposure of the prostate; (5) downward traction of the prostate, by means of Young's tractor; (6) enucleation of the hypertrophied masses; (7) insertion of bladder-drain and closure of the wound. Dr. Pilcher has employed this procedure in 28 out of 30 operations which he has done since September, 1902. In one of the other two a restricted median perineal section was made, and the enucleation conducted by the sense of touch alone. In the other the suprapubic transvesical method was employed. Four of his patients died as the result of the operation.

Perineal Prostatectomy by an Original Technic.

—Dr. Parker Syms said that the treatment of prostatic hypertrophy had ceased to be a question of palliation. Radical procedures were now acknowledged to be the only rational means of relief, and the removal of the masses causing obstruction, if not the entire gland, was called for. In his opinion the perineal operation was the proper one in all cases. It was safer than others, and involved less danger to the patient. It was important to abbreviate the operative technic as much, and to cause as little loss of blood, as possible. Therefore, he advocated the median incision. He believed it gave all the exposure that was obtainable in that region, on account of the anatomical relations of the parts, and if the rectum was to be left intact, the field of operation must necessarily be limited in the great majority of cases. He then proceeded to explain his special technic, illustrating his remarks by means of diagrams. The patient is placed in the exaggerated lithotomy position, a lithotomy staff is passed into the bladder, the membranous urethra is opened on the staff, and the entire incision consists in one straight cut in the median line. Exposure of the prostatic sheath, not the prostatic capsule, is accomplished by simply pushing away the soft parts, including the rectum. The finger is then introduced into the prostatic urethra, dilating it, and afterwards, the Syms tractor. This consists of a rubber bag at the end of a rubber stem, into which a stillette is passed. It enters the bladder very readily, after which it is dilated with a definite quantity of water; thus making elastic pressure from within the bladder. One special advantage of this tractor is that it serves to check the oozing after one lobe of the prostate has been enucleated and the surgeon is working on the remaining portion of the gland. The enucleation is accomplished without the aid of the sight. The entire operation, including enucleation, the treatment of the bladder and the packing of the wound, can be completed within fifteen or twenty minutes. The iodoform gauze packing is removed after 24 hours, the drainage tube after 48, and the patients, who sometimes get up in 48 hours, are not often confined to bed for more than four days. As in all open operations, the healing is rather slow, but this is completed

in from five to eight weeks. Sounds are used after the operation.

Dr. Syms said he believed that this was the simplest operation in use to-day, with perhaps the exception of that of Goodfellow, of San Francisco, who used no tractor whatever, and whose operation was practically the one proposed by Gouley in 1874. As to results, 4 cases died in about 60 operated on. The condition of the patients who recovered was, in the main, very satisfactory. All such patients were, of course, liable to a recurrence of cystitis unless great care was employed. Dr. Young had laid great stress on the preservation of the sexual function, and with a view to this he operated in such a way as to leave a bridge of tissue (which was nothing but a piece of fascia) for the protection of the ejaculatory ducts. His own impression was that, in a certain proportion of cases, the sexual function would inevitably be lost. On the other hand, some patients who had lost the function regained it after operation. The majority were left impotent, or at least sterile.

While Dr. Pilcher's method is an ideal one, other procedures are called for in exceptional instances, and Dr. Carl Beck considered Dr. Pilcher's an ideal method. At the same time, he did not think other procedures were to be altogether excluded. As a general surgeon he was not inclined to look with special favor upon the Bottini operation, yet there were certain cases in which he believed it was preferable to this ideal method. Success was sometimes a matter of personal technical skill; so that some surgeons would get the best results with one method, and others with another. For himself, he did not think that he could do a Bottini operation as skillfully as some others. He had done all these operations, including castration, which had now been practically abandoned, and with a fair amount of success. The operation of ligation of the iliac arteries, however, he had never performed. To sum up, he would say that in all cases where the condition of the patient permitted, he would do the Pilcher operation. In exceptional instances he would think it best to resort to the Bottini operation, castration, or other procedure.

Operation Preferable to Catheterization.—Dr. Willy Meyer said that a great many surgeons advised the use of the catheter as soon as there was residual urine. This, he believed, was a mistake, as he thought operation should be advised instead. In the end, operation was safer than catheterization. In exceptional instances the latter might be permitted, but the average patient could not safely be instructed in the use of the catheter.

Experience with Different Operations.—In 1897 he began performing the Bottini operation, and with a view to conclusively determining its merits he decided to continue using it for five years. Between 1897 and 1902 he performed it 59 times, and with fairly satisfactory results. In the meanwhile great advances had been made in prostatic surgery. Since October, 1902, he had done 41 operations: 9 perineal, 24 suprapubic, and 8 Bottini. Every one of these procedures he believed had a distinct place in the surgery of the prostate. The suprapubic operation of McGill, as modified by Fuller, was an excellent one. Were it not for the increased leakage liable to result from it, he thought it would, as a rule, be preferable to the perineal operation. If properly performed, it was just as safe as the latter. It had been claimed that it required special

strength on the part of the surgeon. This was not the case, however, as it was a matter depending entirely on the manner in which it was done. Personally, he was in the habit of changing his hands after the proper cleavage had been found. If a cutting operation was not permissible, the use of the catheter was generally advised, but as a rule he thought the Bottini operation preferable. By means of it a cure could be effected, so far as a cure was possible from surgery. To claim that this procedure had no place in surgery he thought was absurd. The preservation of the "ejaculatory bridge" of Young did not mean the saving of the potency of the patient. So far as this was concerned, the suprapubic operation afforded a better chance, and before we operate the patient should always be informed of this fact.

Dr. Eugene Fuller said that he had performed the modified McGill suprapubic operation about 250 times, and with a mortality fully as low as that of others. At the same time, he was not blind to the merits of other procedures. In a fairly large minority of cases he considered the perineal operation preferable, and he had employed it in nearly 80 cases. He did not believe in too large an incision, and, in the main, followed the method of Good-fellow. He was accustomed to make rather a low incision, and then work up, so as not to injure the gut. In each individual case the surgeon should think out carefully which operation was best suited to the conditions present. The question was not one simply of getting out the prostate. When long drainage was called for in order to get the patient well, the perineal operation was absolutely contraindicated. In malignant cases it was impossible to enucleate, and the greatest amount of care was required. In some instances a combined operation, suprapubic and peritoneal, was advisable. In his work Dr. Fuller said he had educated his fingers, so that in the manipulations required he could trust them to ten times the extent that he could to his eyes. He therefore did not feel the necessity of great exposure, which was accompanied with the danger of leaving a fistula.

Dr. James Pedersen said that his experience had been limited chiefly to the Bottini operation and perineal prostatectomy. In regard to the Bottini operation his feeling coincided with that of Dr. Willy Meyer, and he would urge anyone performing it to follow the rules so well laid down by Dr. Meyer. As to the perineal, he had been really surprised to see how much could be removed by means of this procedure. He had had no experience with Dr. Syms' tractor, and was accustomed to employ Young's metallic tractor. In some cases the masses were so deep-lying that a tractor could not be used. The forceps devised by Young he thought too long for use in the majority of instances, and he preferred the old-fashioned placental forceps.

Importance of the After-Treatment.—He considered the after-treatment of very great importance. There were four points which should especially be looked after in order to secure the greatest measure of success. These were: (1) Short drainage. The tube should be removed early, say, in from twenty-four to forty-eight hours; (2) as short a confinement to bed as possible; (3) free diuresis (by means of plain water); and (4) mild catharsis by means of salines.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, held at Indianapolis, Ind., October 10, 11 and 12, 1905.

The President, Bransford Lewis, M.D., of St. Louis, Mo., in the Chair.

Addresses of welcome were delivered by Mayor John W. Holtzmann, on behalf of the city of Indianapolis, and by Dr. W. N. Wishard, on behalf of the local profession, which were responded to by Dr. H. O. Walker, of Detroit.

The scientific work was divided into two sections, medical and surgical.

SURGICAL SECTION.

Surgical Dressing.—Dr. Carl E. Black, of Jacksonville, Ill., presented a preliminary report on the technic of the after-dressing of surgical cases. He pointed out briefly the principal elements necessary for the proper dressing of a wound, whether it be a surgical or an accidental wound. While the technic differed somewhat in different kinds of wounds, the fundamental principles were the same in all. Such a consideration divided itself into (1) the patient; certain modifications must always be made to suit the individual case. (2) Those things which were auxiliary to the dressing itself, but which did not come in contact with the wound. (3) The surgeon or nurse making the dressing and his or her assistant. (4) The instruments, dressings and solutions coming in contact with the wound. Septic wounds should be so dressed that there was no opportunity for a further mixture of infection in the wound, nor any opportunity for the infectious material from the wound to in any way be scattered where it could come in contact with other wounds. These two points should always be the basic principles of a surgical dressing, and should always be kept prominently in mind by those undertaking the dressing of wounds. To facilitate dressings and to economize in materials, and at the same time carry out a thorough technic, the author had arranged and had been using for some time a plan which had proved quite satisfactory. He had devised a box which contained everything that might come in contact with the wound, and everything, excepting the instruments, could be purchased in ordinary stores of towns, and were not expensive. This plan was described in detail.

Dr. John Young Brown, of St. Louis, Mo., thought the secret of the success of the essayist in dressing wounds was due largely to the thorough system he had inaugurated. System was everything in surgery, as in business.

Dr. O. H. Elbrecht, of St. Louis, Mo., said the sooner surgeons reached a standard in the sizes of dressings, in tapes, squares, oblongs, etc., the less confusion there would be on the part of the surgeon in going from one hospital to another to do surgical work. He mentioned the plan adopted by him in the hospital with which he was connected.

Dr. C. E. Ruth, of Keokuk, Iowa, said that the sooner the profession came to a realization of the needs pointed out by the essayist the less confusion there would be, as well as lessening very materially the liability to infection.

Dr. Miles F. Porter, of Fort Wayne, Ind., said the keynote of success in the management of surgical cases was system and simplicity. One should attempt to do away with the necessity of dressing

wounds until they were healed in all cases where this was possible. The essayist spoke of there being no necessity for dressing an aseptic wound until the stitches had been removed. The speaker said there should be no stitches to remove in the ordinary aseptic wound, no matter where it was located, and in the ordinary treatment of septic cases the rule, as it prevails in his judgment, made necessary a great deal more subsequent dressing than was called for. The dressing of a wound after it was made should be looked upon as an evil to be avoided as far as possible. He illustrated this point.

Dr. Black, in closing, said that the gist of the whole matter was system for the purpose of saving time, of safety for the patient, and for the purpose of economy.

Curettage in Septic Cases.—Dr. C. E. Ruth, of Keokuk, Iowa, stated that prevention must always be the most important treatment, and must always include hygienic asepsis of the patient and physician, and great care in examination. No instrumentation in any variety of puerperal sepsis should be considered which denuded the uterine mucosa and opened up tissues not in any sense protected from septic infection, the utmost gentleness being used to avoid any possibility of puncturing the softened or disintegrated uterine wall. The curette should never be used in such cases, certainly not a small or sharp one, and then only in the least serious of these cases, namely, saprophytic intoxication, which was not sepsis. He had for many years been satisfied with a placental detacher of his own device, which answered every purpose with a minimum danger of perforation. Streptococcic and staphylococcic were the most serious of puerperal infections, as these, on the manifestation of symptoms, passed beyond all possible reach of removal by any form of curettage. While curettement could do no good, it might do much harm in disseminating infection and in causing uterine perforation. Within the last two and a half years the author had operated upon four cases of puerperal sepsis which illustrated the dangers of curettage. These cases were reported in detail.

Dr. O. H. Elbrecht, of St. Louis, Mo., thought that many deaths were due to the curette being used in cases of septic uteri. It was just as criminal, in his judgment, to introduce a curette into a septic or infected uterus as it was a sound or curette for the purpose of producing criminal abortion. He mentioned one case in which a physician curetted a uterus contrary to his advice, and the next day the patient died. He mentioned two other cases of sapremia that terminated fatally from what he believed to be curettement of the uterus.

Dr. H. O. Walker, of Detroit, said the paper was timely, and one could not condemn too strongly the indiscriminate use of intrauterine curettes and irrigators. Many deaths were undoubtedly due to the indiscriminate use of these instruments.

Dr. John Young Brown said that while the indiscriminate use of the curette was dangerous, it nevertheless had an important function to fulfil. Where there were decomposing membranes or fragments of retained placenta the uterus should be cleaned out.

Dr. Hannah M. Graham, of Indianapolis, related her experience in treating the class of cases under discussion. She used an applicator, and not a sharp or dull curette. Cotton was wrapped around the applicator, which was saturated with carbolic acid, and the debris left in the uterus was swabbed out.

It was her practice, too, to use a fenestrated catheter as a drainage tube, through which peroxide of hydrogen was injected every two to three hours, either by herself or the nurse, and she had had good success by this method.

Dr. A. M. Hayden, of Evansville, Ind., concurred in the remarks of Dr. Brown. When a physician was called to see a patient whose uterus contained a broken-down fetus or fragments of placenta, if he failed to clean out that uterus he thought he was criminally negligent. Patients went on for weeks with elevation of temperature due to sepsis, and would not get well without the judicious use of the curette, while if the uterus was cleaned out the patients would recover in a short time. He advocated the use of placental forceps for removing debris or pieces of retained placenta without disturbing or breaking down nature's protection.

Dr. Thomas B. Noble, of Indianapolis, uttered a word in defense of the uterine curette, saying it was an instrument for prevention as well as cure. The proper way was to interpret the pathology that one had to contend with, remembering that the curette was a means to an end. If a woman was suffering from high temperature, rapid pulse, prostration, due to saprophytic material in the uterus, which could be removed by mechanical means, the physician did her an injustice if he left the uterus alone, simply trusting to the *vis medicatrix nature* to take care of it.

Dr. G. Frank Lydston, of Chicago, said he did not believe that the essayist nor those who spoke so emphatically in condemnation of the curette would fail, as a matter of practice, to differentiate between the post-abortive septic phenomena met with and the post-puerperal septic phenomena. He did not believe that any of the gentlemen intended to convey the idea that the curette was to be condemned and never to be used. If one were called to see a woman who had been suffering from general sapremia for several weeks, who was in such a condition that it was evident dissolution was not far away if something was not done, if the history was such that material had been left behind in the uterus, and she was having a temperature of 106° F., he would certainly not treat such a woman surgically or provide drainage by way of the vagina through the medium of vaginal irrigation, but would remove the septic material from the uterus. If this were not done the case was doomed, and many women in such a condition recovered under proper intrauterine treatment.

Dr. Ruth, in closing, said he thought a good deal of the discussion arose from a misunderstanding or failure to differentiate between the different varieties of infection that one had to deal with. There was no danger from a careful curettement in a case of putrescent uterus in which there was not added to the intoxication or sapremia a septicemia.

Artificial Hyperemia in Surgery.—Dr. Alexander C. Wiener, of Chicago, pointed out the indications for this treatment in surgery, as follows: (1) Subacute mild inflammations of joints and soft tissues were relieved rapidly. (2) Acute purulent inflammations of soft tissues either on the extremities or the head. (3) Acute and subacute inflammations of joints and purulent arthritis; gonorrheal infection of joints. In these cases the elastic bandage had to be applied in such a manner as produce energetic venous stasis, without causing pain to the sufferer. In acute inflammations comparatively light constrict-

tion produced an immense hyperemia. This conclusively showed that the arterial blood was not diminished, but slackened. Cases were cited in which excellent results were obtained by the Bier method.

Surgery of the Gall-Bladder and Its Ducts.—Dr. H. O. Walker, of Detroit, Mich., related his experience with 185 cases upon which he had operated. He quoted from a former paper written by him years ago, saying that what he said then still obtained to-day. First, jaundice, which heretofore had been regarded as almost pathognomonic of the presence of gall-stones, was present in only about 20 per cent. of all stone cases. Second, that pain in the region of the gall-bladder did not by any means indicate the presence of gall-stones, but was quite as often the result of a kinking of the cystic duct from lesions the result of one or more attacks of cholecystitis combined with pericholecystitis. Third, the passage of stones in the feces was not as common as was formerly supposed, for colics were rarely successful in passing a stone from the gall-bladder. Fourth, empyema of the gall-bladder was not always felt by palpation, for frequent attacks of cholecystitis tended to diminish the size of the gall-bladder. Fifth, tumors of the gall-bladder without pain or jaundice indicated a simple dropsy, while a painful, distended gall-bladder indicated empyema, and when accompanied by jaundice indicated constriction of the choledochus. Sixth, a hard nodular painful tumor of the gall-bladder, with or without jaundice, was almost certain evidence of carcinoma. Seventh, obstruction of the choledochus, accompanied with inflammation and jaundice, quickly disappeared after the passage of the stones into the papilla of the duodenum. Cholelithiasis was of greater frequency than was supposed. Approximately every tenth individual had concretions in the gall-bladder, yet only about one in twenty ever complained of their presence, so that quiet stones needed no treatment. It was only the cholecystitis and cholangitis which made manifest the irritable presence of gall-stones without demanding treatment, namely, medicinal and surgical. The conditions that required operative intervention were (1) an acute seropurulent cholecystitis, and accompanying pericholecystitis. (2) Persistent and frequent pains due to adhesions between the gall-bladder, intestines, stomach and omentum. (3) Chronic obstruction of the common duct. (4) Chronic empyema of the gall-bladder and its accompanying accidents. Cholecystectomy was undoubtedly advisable where the gall-bladder had been subject to frequent attacks of inflammation, and where chronic septic conditions existed. The author reported an interesting case in which he removed the gall-bladder and fixed the right kidney.

Retroperitoneal Teratoma.—Dr. C. M. Nicholson, of St. Louis, Mo., read an interesting paper on this subject.

The tumor described was a teratoma of the abdominal cavity, remarkable not only because of its rare occurrence, rapid growth and total absence of symptoms until three weeks before death, but because with its substance had been found a chorion epithelioma. The following is a report of the author's case: August 5, 1905, he was consulted by C. W., a healthy-looking, well-developed young man, twenty-one years of age, who complained of one symptom, fainting, which had occurred twice during the preceding week. He had attended to his

business until August 4, when he quit work, fearing an accident during his trips as superintendent down in the mine. Upon inspection the abdomen appeared normal; pressure over the region of the gall-bladder enabled the examining finger to outline a pear-shaped body. In the median line beneath the rectus abdominis, extending from a point four inches above the pubes to the lower margin of the right lobe of the liver was an immovable mass of definite form. The line of dulness was continuous between the pear-shaped body and the mass in the median line. Although the growth measured four inches in width, no intestinal disturbance had resulted. Three weeks later patient vomited and complained of great pain after eating. The vomiting became more frequent and the pain more severe with each succeeding day. He saw the patient September 3, and the following morning made an exploratory incision, revealing a growth extending from the right kidney to the last dorsal vertebra, thence downward to within two inches of the pubes. It was firmly attached to the median line posteriorly and to the kidney externally. The posterior peritoneum was cut through and the mass found to be enclosed in a fibrous capsule, which was sewed to the anterior layer of the peritoneum, and a portion of the growth removed. The patient sat up at the end of the first week, but continued to complain of great pain. He died two weeks after the operation. Post-mortem examination was made by his assistant, Dr. S. S. Stahl, whose report in part was as follows: "On opening the cavity of the abdomen and cutting through the posterior peritoneum and fascia transversalis, a fibrous capsule enclosing a semi-solid mass and adherent only in the median line and to the right kidney, was found. Not without difficulty could the tumor be removed, so intimately was it attached to the structure anterior to the vertebral column. The abdominal aorta from the first dorsal vertebra to the fourth lumbar was closely attached to the growth. The gall-bladder was distended, evidently due to pressure on the common duct. Neither the lumbar glands nor the kidneys were enlarged, although the right kidney was adherent to the tumor. The liver, though very slightly enlarged, showed evidence of involvement. The heart and pericardium were normal. The lungs contained two or three hundred nodules." The tumor weighed a little less than two pounds. It was right-angled and lobulated, the lobules being smooth and extending in different directions. On cutting, the tumor was soft, the anterior inferior extremity being partially cystic. Some of the cysts were as large as a hazelnut. The remainder of the growth appeared solid. The outer surface of the tumor was covered with a distinct fibrous capsule. Paraffin section of the Zenker-fixed tissue showed a very complicated mass. Portions of organs were found corresponding in embryonic origin to all the germinal layers. Skin, cutaneous organs, central nervous system, peripheral nerves, represented the epiblast. Mucous glands, tubes, cysts with epithelial lining were indicative of the hypoblast. Bone, cartilage, fibrous tissue constituted the mesoblastic structures. The author considered at length the different theories advanced in the past to account for the origin of teratomata.

Dr. Joseph Rilus Eastman, of Indianapolis, said he had had a remarkable experience in relation to tumors of this character. He had had two cases of complete precoccygeal teratomata, but he had not had such a case as the one related by Dr. Nicholson.

The speaker's cases were simply instances of precoccygeal teratomata; they were not cases of inclusion fetalis, which Dr. Nicholson had reported. In the first there was presented the clinical picture of a complete external fistula in ano. Long hairs protruded from both orifices, but when the roof of the canal was split up it developed that there was quite a cavernous space there which was lined with epithelial membrane, and this proved to be in either case a precoccygeal teratoma or dermoid.

Dr. Nicholson, in closing, stated that chorion epithelioma occurring in a case of retroperitoneal teratoma was extremely rare, and so far as a search of the literature was concerned, he had been unable to find a similar instance. Examination of the microscopical slides demonstrated clearly the presence of tissues from the three germinal layers.

Some of the Fallacies in the Clinical Diagnosis of Gonorrhea.—Dr. G. Frank Lydston, of Chicago, discussed some of the more dangerous of the fallacies in the diagnosis of gonorrhea, with especial reference to prognosis as regards the infectiousness of a given individual to other and healthy persons with whom he or she might come in sexual contact. He considered, first, the possibility of excluding infectiousness in the case of a woman under suspicion, or who was known to have had gonorrhea. That the most dangerous type of infection of the female was that in which the external manifestations of the disease were absent or wanting was coming to be well understood by both gynecological and genito-urinary specialists. The explanation of the relatively great danger of infection of others by such subjects was not so thoroughly understood as it should be. Gonorrheal urethritis in the female, when it had assumed the chronic form, might present no secretion whatever upon external examination. There might be little or no vaginal, cervical or uterine discharge, and even such as there was might upon examination fail to disclose the micro-organisms of gonorrhea. A swab or probe passed into the urethra might return perfectly clean. Notwithstanding this apparent lack of infection in the urethra, the mucous glands might be involved, and under the influence of sexual excitement and the mechanical effect of coitus the physiological hypersecretion might convey to the meatus gonococci in abundance. The result was sufficiently obvious. The author presented clinical facts which would seem to make it impossible for a physician to state in any given case that a woman was free from infection. This was one of the strongest arguments against regulation and medical inspection of prostitutes. He entertained serious objections to the medical profession constituting itself an assurance society for the protection and promulgation of the social evil, but aside from this scruple there remained the fact that no reliable system of inspection or examination could be devised. The author was firmly convinced that in many cases of infection of healthy women by a latent gonorrhea of the husband, mixed infection was responsible, and the resulting pathological condition in the female was non-specific. Its being non-specific, however, did not preclude the possibility of its becoming very serious. The author thought that there were no tests at the present time which would enable the profession to give a positive opinion of the infectiousness of a given case of suspected latent gonorrhea. As already suggested, the clinical history in many cases was more important than the laboratory

study of the case, and a careful combination of both methods of study was always essential. The physician should be as chary of assuming responsibility in advising a gonorrheic in the matter of matrimony as he should be in advising syphilitics under similar circumstances.

Dr. W. E. Washburn, of Kewanee, Ill., exhibited an improved urethrotome.

(To be Continued.)

BOOK REVIEWS.

A MANUAL OF EXPERIMENTAL PHYSIOLOGY FOR STUDENTS OF MEDICINE. By WINFIELD S. HALL, Ph.D., M.D. (Leipzig), Professor of Physiology, Northwestern University Medical School; Professor of Physiology, Wesley Hospital School for Nurses; Professor of Physiology, Mercy Hospital Training School for Nurses; Lecturer on the Physiology of Exercise, Institute and Training School, Chicago. Lea Brothers & Company, Philadelphia and New York.

THIS little volume of 240 pages will be found a useful and practical laboratory manual for medical students who are preparing for the practice of clinical medicine and surgery. The subject-matter is arranged in two parts, the first taking up experimental general physiology, and the second covering the ground of special physiology in chapters on the circulation of the blood, respiration, normal hematology, digestion and absorption, vision, the physiology of the nervous system and the physiology of the muscular system. The order of these chapters can be shifted by the instructor, so as to correlate with other portions of the medical course if necessary. The arrangement of the book has been guided by the intention to work up from the simple technic of the preliminary chapter on cytology to those subjects involving a greater degree of difficulty in this particular.

THE PREPARATION AND AFTER-TREATMENT OF SECTION CASES. By W. J. STEWART MCKAY, M.B., M.Ch., B.Sc., Senior Surgeon to the Lewisham Hospital for Women and Children, Sydney; Late Surgeon to the Benevolent Asylum Maternity Hospital, Sydney; etc. William Wood & Company, New York.

In this volume Dr. McKay has elected to elucidate a field which to the graduating student, generally speaking, remains an unopened chapter, and to the practising surgeon a source of perplexity and anxiety.

The first 150 pages are devoted to the preparation, equipment and arrangement of a well-appointed operating room, and include appropriate descriptions of the methods of disinfection and sterilization, the preparation of the patient, the duties of the nurses and assistants, the anesthetic and the dressings.

Following this, certain modifications which are of practical utility in office work and home operating are suggested.

The remainder of the book reviews generally the subject of postoperative management, emphasizing the symptomatology of the multitudinous complications and sequelæ to be recognized and the appropriate means of combating them when once manifest.

Viewed collectively, the work not only presents a painstaking compilation of accepted methods and opinions, but also furnishes a wealth of personal detail gained from an extensive surgical association and observation.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, OCTOBER 28, 1905.

No. 18.

ORIGINAL ARTICLES.

PHASES IN THE DEVELOPMENT OF THERAPY.¹

BY A. JACOBI, M.D., LL.D. (MICHIGAN, COLUMBIA, YALE.)

OF NEW YORK.

PREHISTORIC times cannot have been without therapy. Wounds and diseases found sympathy and such aid as bystanders could give. Animals lick each other's bruises and the human animal cannot have been an exception to the rule. Later the power and practice of healing must have been considered a high privilege, for two or three thousand years B.C. the high priests and kings of Egypt practised it. Their technic in many things was excellent. We know their rules for enemata, emetics, purgatives, bathing and frictions, circumcision, and embalming, and the number of specialties was at least as great as it is to-day.

The communication between countries and parts of countries was defective. That is why the healing art remained gross individual empiricism more in some countries than in others. Herodotus tells us that in his own time the sick person in Babylon was carried to the market place—for they had no physicians, he says—to be benefited by the advice of the wayfarers. For it happened at that time, as in 1905 after Christ, that your neighbors boasted of having enjoyed exactly the same disease and ache and knew all about its cure.

About the middle of the fifth century B.C. Hellas, whose first tales of legendary medicine dated back into the Homeric period when "the healing man was of more value than a host of others," had well organized medical schools, though not always unanimous in their teachings, a good beginning of public and private hygiene, and an extensive knowledge of many pathological and therapeutical facts.

Medicine and its main object, therapy, did not remain individual. Long before the Christian era—about 437—the Buddha king of Ceylon, Pandukhabayo, established sanitary institutions, among which there was at least one hospital, and one of his successors—Dathagámmi, who died 137 B.C.—is said to have supported with ample means hospitals in eighteen different cities and to have had medicines prepared in them by medical practitioners.

Buddha's humane teaching extended westward to Persia and Asia Minor,—not to Judea, however, where we know of isolation houses only for the leprous—thus the king of Usia had to terminate his life—and to Greece and Rome.

The iatria of the Asklepiads and the institutions established by Antoninus Pius were dispensaries and a few clinical hospitals. A few centuries after Christ the Christians found their gratification in helping one another in dangers and diseases, and nursing the sick in their homes and in hospitals. It is evident that the humane element prevailed in most of the cultured parts of the human family.

With us only that is different. Only three weeks ago Town Supervisors refused to the New York City Health Department permission to locate a Tuberculosis Sanitarium in an out-of-the-way mountain region. But it is true they are the Shawangunk Mountains, and the town board is that of Mamakating, and the Indian names still correspond with the tomahawk spirit of the uncouth savage, not amenable to instruction or humanity.

Though the Roman Emperors favored the physicians, medicine deteriorated under secular and clerical oppression. The belief in miracles, spirits and demons, and ascetic mysticism took the place of the naïve, unscientific medicine of older times. Thus medicine perished, though sciences in general were still nursed and though the study of the law flourished. Physicians were replaced by magicians and sorcerers; those few who clung to Hippocrates and Galen were suspected of heathenism. The Christian clergy established its own schools, the most famous of which was that of Edessa, in which the psalms of David and the New Testament were the preparations for medicine. When finally the Christians obtained the political power there came the end of philosophers and physicians. Only after the sixth century did the Benedictine monks begin again the study of Galen. The school of Salerno, five hundred years afterward, contributed its "regimen sanitatis"; which contains dietetics, with a brief pathological, pharmaceutical and therapeutical appendix.

Meanwhile the Arabs studied botany and pharmacology, and used many remedies, metals, narcotics, stimulants, cosmetics and aphrodisiacs. Surgery and obstetrics, however, were thoroughly neglected. Before they had time to influence European practice at all, medicine had a low standing. Jews and the lowest ranks of monks only were permitted to practice. When an illness appeared dangerous, the doctor had to provide a guarantee. When a nobleman died of a venesection, the doctor was delivered into the hands of the family. That was not only usage, it was law according to the West Gothic code. When a slave died in Venice, about 1100, the doctor had to pay; if he were a Hebrew he was hanged. Thus it happened that only loud-

¹ Address on Medicine, delivered before the Medical School of Yale University, June 26, 1905.

and the poor had the medicines gratis, the others paid the apothecary. The King adds in the most not courteous language of his appointment for the big masters in physic seventy pence for nothing, and is why they go to the supervision of medicine was no longer in the clergy.

Various universities of the eleventh and twelfth centuries made room for medicine after a fashion. Arnold of Villanova says there was no room for the teaching, but grandiloquent though in spite of all their learning they "did not know how to apply an enema, or to cure an epidemic fever." The petulant expounding of adulatory quotations of Hippocrates, Galen, and the like was still more perverted by scholasticism. One of their best teachers, Arnold of Villanova, about 1300, on account of his doctrine of the propriety of combining dialectics with medicine, was charged with heresy by the doctors. He attributed to the drugs an "accidental" and a "complexio potentialis," which could only be appreciated by reasoning, but by the empirical method. Still, it was proclaimed to be, after all, the most important.

Four hundred years after him Hahnemann, who was quite learned, picked up from the idea of "potential" drug action.

According to Hahnemann also, no medicine was active as long as chemically or microscopically the slightest trace of the original substance could be detected.

John Gaddsdon, in the same fifteenth century, wrote a "Rosa Anglica." He eulogizes his own secret remedies, uses liquor as a panacea, hogs dung for hemorrhages, and cures the vermin of the eyebrows with purgatives. Possibly it is here that Hahnemann picked up his Psora. Perhaps it is not amiss to remind you that only two centuries ago Paullini wrote his "Dreck-apotheke" (dirt pharmacy)—which recommends urine, feces of animals and man, and other sweetnesses as all-healers. The best there is in this transgression of Paullini's—who otherwise was quite a meritorious man—is that he lived exactly at the same time when books were written on the cure of disease by whipping, another

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all-healer, gold. Nowadays they say gold is made by those who are not afraid of disturbing the equilibrium of the universe.

On the other hand, the most poisonous materials were used as medicines, but chemistry also was studied and many useful preparations were discovered. Bisam, and iron, and bezoar stones, and compounds of numerous parts and other objects were utilized. The great triaca was a compound of seventy articles. Symples, pills, ointments, oils and plasters were in common use.

Of the nature of diseases they learned a few times but very little. Even long afterwards variola and morbilli are treated as unknown. All sorts of plagues are mentioned, the great fire (erysipelas?) without discrimination. It is why the theory of the modern mainly Ameri-

can, origin of syphilis could be asserted up to our present time, for skin diseases were general, and were not diagnosed. But the nursing of the sick became a religious duty and a political office. Isolation houses were established and lepra disappeared in a few centuries from central Europe; the Norwegians have accomplished the same result in a more humane way during the last thirty years. That should be a lesson for us who are prevented by a narrow egotism and shortsightedness and the waste of the earnings of the people on wars of conquest and extermination, from putting an end to the great white plague of the modern world. Hospitals were founded and nursing went far enough to become an absurd fad. Elizabeth of Thüringia cleansed the leprous, washed their feet, and kissed their boils and ulcerations. That is why she died very young and was sainted.

Meanwhile therapeutics was not at all simple. The non-clerical physicians had to submit, or were fain to submit, to fast-days, processions, prayers, donations to churches and monasteries, incantations, sympathetic remedies—all for the purpose either of exorcising or of calling the aid of the evil spirits.

A very important progress was, toward the end of the thirteenth century, the foundation of the surgical college of Paris. It was made independent of the clergy and of the medical faculty. With the latter it was in constant conflict; the best minds were engaged in it, and for all time the surgical part of medicine has determined the latter's fate in France. Guy de Chauliac wrote on wounds, hemorrhages, fractures, ulcers, and operations.

Of a similar, perhaps greater influence, was the appearance of formidable epidemics—the black death, the English sweat, angina, typhus, syphilis, which then was more formidable than ever before, and scurvy. They could not be managed according to the books and compelled the doctors to think for themselves.

The Hippocratic teachings, founded upon the observation of nature and a healthy empiricism, got lost during the Middle Ages. Aristotle misrepresented in garbled copies, and Plato, who looked for the explanation of material facts in mere reasoning, controlled what should have been medical thinking. The medicine of the Arabs was hated by most of the Christians because it was infidel.

Gross superstition was rife, in addition. Miracles were performed as in antiquity. Suetonius tells us that Vespasian cured the blind by his saliva and the lame by his touch in the temple of Serapis at Memphis. According to Nepotianus the right toe of Pyrrhus of Epirus cured diseases and deformities, "*remedio erat si cujus renes tumentes eo tetigisset.*" That is why when the body was incinerated the beneficent toe remained intact and could be preserved in a gold box in the temple of Dodona. Such practice was continued in the Christian middle age. Scrofula

was cured by the touch of Edward the Confessor and Phillippe of France, and Olaf of Norway in the eleventh century. So it was called the King's evil. They lived at the wrong time, however, they required physical touch—to-day distant treatment is preferred. Both are of equal efficacy.

The inheritance of a glorious past was forgotten. The cloaca maxima of Rome, erected two thousand years previously, was disused and survived in ruins, and the 800 baths constructed in Rome within 600 years, between 400 B.C. and 180 A.D., were neglected.

Physicians were not trusted, still they were made responsible, not only for individual cases but for natural events. During an epidemic in Prague, 1161, on the charge of having poisoned the wells, 86 Jewish physicians were burned to death. Before the time of Pope Urban IV., hundreds were burned. John of Bohemia, the same who fell in the Battle of Crecy, suffered from his eyes. In Breslau he consulted a French oculist, who, because he could not effect a cure, was drowned in the Oder; and centuries afterward Helmont was imprisoned by his Bishop because he doubted the therapeutical competence of religion.

Pietro d'Albano followed the teachings of Arab medicine, the only one which clung to Hippocrates. That is why he was to be burned. But he outwitted them by dying in their dungeon, 1250 A.D. The pious people, however, took their revenge on Cecco d'Ascoli, whom they did burn in 1257. Still Venice appointed in 1348 three physicians of public health, with the right to isolate houses and districts for forty days—the first beginning of our quarantine. During the fifteenth century large cities of Germany established the office of City Physician.

The period of religious reformation was also the source of some independent endeavor in medicine. It is true that Luther, Calvin and Zwingli established incontestable religious autocracies in place of those they had overcome, but they could not help raising doubts and independent thoughts in many minds. Luther himself thought very little of doctors. He employed them but did not pay them. He recommended his family physician to the Elector of Saxony by writing that he was all right and cheap; the only thing he ever gave him was a glass of beer. That was his clerical fee. Calvin did worse—he burned Serveto.

One of the mooted questions about that time was that of the Arabic and the Hippocratic venesection. It shows to what extent apparently small things may embarrass human minds, mainly when the stock of actual knowledge is small. The Arabic method consisted in the opening of a vein at a distance from the diseased part; the Hippocratic, in close proximity to it. Peter Brissot, professor in Paris, favored the latter, and caused the division into contra-Arabists and Arabists. This dispute lasted long after

Brissot's death—to the end of the sixteenth century. His teaching was claimed to be as heretical as that of Luther. But after a while the Faculty of Salamanca and Charles V., to whom appeal was made, decided in favor of the Hippocratic method and of the dead Brissot.

About the same time Germans, Dutch, Italians and Swiss studied botany, mineralogy and zoology. Directly and indirectly therapeutics became enriched. The new anatomy was the best aid of surgical therapeutics. For internal diseases blood-letting was still the main topic of discussion, and Botalli was the Bouillaud of the sixteenth century. His teaching, however, was declared heretical by the Paris Faculty. Drugs were nearly all vegetable, in very complicated formulas, mostly. Metals were disdained, but mineral springs were much used. Italian surgery was most benefited, German almost not at all, the French very much indeed. It was mainly Ambroise Paré (1517-1590) who rejected Vigo's doctrine of the poisonous character of shot wounds, ligated arteries instead of cauterizing, limited the use of the actual cautery in general, abolished castration as a part of the radical operation for hernia, introduced the truss, improved trephining, and treated the prostate as the frequent cause of strangury. Never was there a man who like him enriched therapeutics, never a cooler and less prejudiced mind (in spite of his participation in his century's belief in witches and sorcerers). "A remedy that has the stamp of experience is better than a new one that was just invented"—that is one of his principles which might be placed over the entrance of every one of our clinics. Nor was his courage of a low order. In the face of the jealous medical brethren who, moreover, hated him because he wrote French and not Latin, and of the supercilious courtesans, he denied the therapeutic effects of the fabulous unicorn, whose very existence he was bold enough to question. By one of them he was furnished the final altogether incontrovertible evidence—"The King has at St. Denis the horn of a unicorn for which he refused 300,000 francs." No further proof was required.

The plague was mainly treated by the theriac. Syphilis, an old disease, but very frequent about and after 1500, was feared by the regular physicians, many of whom ran away from it. Mercury soon became the general treatment, mostly in inunctions, also in fumigations and internally. Guaiacum was praised by Hutten. Cinchona, sarsaparilla and sassafras were frequently employed, but still the imagination of the uncultured people of all stations clung to astrology and the horoscope. It was—with a number of others—Paracelsus who, in his iconoclastic furor, cut loose from them. He claimed that the diseases should be named according to the drugs that cured them. In this respect he was imitated by Rademacher 300 years later. His principle of treatment was: *Similia similibus*. That was copied several hundred years after-

ward by Hahnemann. His main remedies were: Antimony, gold, mercury, silver, copper, lead, sulphur; but also preparations taken from those drowned or those cut from the gallows.

Chemistry obtained a certain degree of independence in the seventeenth century. Surgery and obstetrics made but little progress, but many new drugs were introduced, mainly ipecac and cinchona, which I mentioned. In the eighteenth century surgery advanced considerably in the hands of Petit, Desault and Heister; the forceps was invented, and many an infant saved. Still obstetrics was murderous. One author boasts of losing "only" 8 out of 10 babies—forceps or no forceps. That is what, alongside with wars, pestilences, famine and ignorance, explains the slow increase of populations up to the nineteenth century.

Internal medicine gained rapidly in England (Mead, Huxham, Fothergill, Pringle) and Germany (Werlhof, Vogel, Zimmermann, Frank).

Altogether the evolution of both theoretical and practical medicine is due to the revolution taking place in scientific minds. Copernicus and Kepler, later Isaac Newton, prepared the medical world for unheard-of changes. Bacon of Verulam and Descartes abrogated the scholastic methods prevailing in all questions bordering on the science of man. Meanwhile Vesal founded anatomy, Harvey physiology, Morgagni pathological anatomy; Haller owned and enriched the sum of medical sciences; Priestly discovered oxygen, and Lavoisier the principles of the process of respiration and the meaning of oxidation; and John Hunter established medical experimentation.

Not long after Paracelsus the microscope was utilized. Kircher proposed the theory of a contagium animatum in 1671; Leeuwenhoek discovered real bacteria in 1675. Clinical observation and therapeutics, in spite of perverted theories, found its apostles in Sydenham, Boerhaave, von Swieten, Peter Frank, and Auenbrugger, who in 1761 taught percussion, Corvisart, who made people believe in it in 1808, and Laennec, who, guided by pathological anatomy, taught auscultation. Meanwhile, Bichat had demonstrated the morbid processes in the tissues in place of regions or organs, and his countrymen, while Germany, in accord with its political depression and indolence, was entirely given over to the obscurantism of what was called nature philosophy, worked their way up into the great facts of pathological anatomy. Undoubtedly the parliamentary spirit of French politics awakened ambition and discussion. When the minds of Central Europe became sufficiently prepared both for an intellectual and a political revolution, Rudolf Virchow took part in both. In the theory and practice of medicine, individual and public, he became the immortal leader.

Through all the previous times, viz., the first half of the nineteenth century, Great Britain had

never deviated from its practical common sense. It contributed very little to the general knowledge, but it never was led astray by the wanton system of Brown, which had to look for proselytes in Germany and America (Benjamin Rush was its prophet), and the names of Travers, Williams, Crawford, Astley Cooper, Charles Bell, Abercrombie, Marshall Hall, Cheyne, Pitcairn, Bright, Carswell, must be mentioned in the very briefest sketch. To say that English medicine was without prejudice, however, would be wrong. The narrow uniformity of opinion, for instance, was such as to force candidates for a degree to swear they would never engage in homeopathy.

About and after the time of the Vienna nihilism nothing was thought of except nursing and diet, defective at that. The action of drugs was not known or appreciated. If diseases had their legitimate type, it was not recognized. About 1860, however, therapeutics became acknowledged as the very aim of medicine, new methods were found, observation and treatment became more local, surgery, ophthalmology, laryngology, enjoyed the aid of new instruments of precision; physical remedies, electricity, warmth and cold became known, and therapeutics grew to be more prominent in the thoughts of the world, both medical and lay. It was then that hydrotherapeutics began its career. For it was the time in which theories had been shaken, the people took more interest in their own welfare, discussions of all sorts were universal, and the political and individual dignity of man was recognized. All that happened though the contest between nations, diffidence, malevolence, jingoism, cruel wars, were still the signature of the times. Only the fight against disease became the same in all countries with the new scientific methods. Evidently equality, fraternity, and solidarity begin in and through science and its application. The process is slow, and the only consolation is that history is long. There is no longer a fratricide in science, there must come an era when there be none among nations.

The modern improvement of therapeutics has resulted from the change of methods. In place of mere empiric observations the new experimental method was applied, as in all biological studies, to that of the effect of drugs, and the cause of disease and its results. Diagnosis began to include etiology, etiology suggested treatment.

A few instances of the extent to which etiology has modified our treatment in modern times are the following: A wonderful change in the practice of modern medicine has been worked by the extermination of teething as an alleged cause of disease. I may be very brief, for I state only what everybody knows, viz., that teething is a physiological process which is not disturbed except by a serious constitutional disorder or a local anomaly in the bone or in the

mouth. All the diseases which were attributed to dentition as a matter of course exist, but have nothing to do with it. Slight indisposition of a nervous disorder requires no interference, but rickets, diarrhea, and convulsions demand a diagnosis and individual treatment. To the same degree, however, that the teeth of infants and children have lost their import as a cause of disorder, those of the adult have gained. Modern dentistry is one of the aids not only of comfort and beauty, but of health and longevity.

There is another subject which is becoming of vast import. Rachitis is old in poor, abject, prince- and war-ridden Europe, but was unknown in America until forty years ago. Immigration carried with it population, labor, wealth, rapid expansion, numerous new States, incentive to scientific efforts, also competition, tenement houses, subterranean dwellings, factories, woman and child labor, poverty, much tuberculosis, and rachitis without end. Before the law of the land will be so improved that the social conditions become humane, the skill of the physician will be demanded with his hygienic and medical treatment. Avoid the artificial infant foods, the use of unmixed cow's milk, prolonged maternal lactation, and bad air. Diagnose rachitis early, when constipation beginning in the second month, softening of the cranial bones, undue perspiration of the occiput, slight beadings of the ribs, laryngismus, cerebral congestion or hydrocephalus suggest the diagnosis. When you diagnose early and treat early you may prevent sudden death, prolonged hydrocephalus, secondary idiocy or imbecility, and lifelong deformities. Air and mixed food, animal broth and cereals, cod-liver oil and phosphorus and bathing—all of them easy to procure, even by the poor—yield a proof of what therapeutics guided by diagnosis can accomplish.

Hereditary syphilis is now known in many of its late and modified results. Everybody knows its symptoms as they appear immediately after birth or in the second month. Everybody knows at present, or should know, that by causing hyperemia on the places of apposition it favors rachitis, but also early hyperostosis with but little deformity; that it increases the size of the head in the first half year of life, but less than rachitis, which continues to have that effect permanently; that by inflammation of the interstitial tissue, the periosteum, or the blood vessels, it may cause hydrocephalus, which may, when recognized, become accessible to treatment; that it interferes with the general development in the shape of what Fournier called metasymphylis to such an extent as to render children of six or eight years, with no apparent illness, puny and sickly. Through knowing all this we find our therapeutics of a great many ailments and imperfections of children vastly improved; the little invalids gain flesh and color and vigor, and permanent health, not with arsenic, or iron, or other roborants, but with mer-

cure. I know of no greater addition to the welfare of society through drugs than this, and no greater reward to the careful diagnostician of a condition which is quite frequent.

Since in our own time a number of insects have been found to be the carriers of both infectious and contagious diseases, the benevolent friends of our animal neighbors have reason for anxiety and lamentation. For malaria is communicated by the musical anopheles mosquito—no courtesy seems to be extended to it, though it is only the female that sings and stings—the filaria disease by *Culex* and *Anopheles*; yellow fever by *Stegomyia fasciata*, the sleeping sickness of Africa by *Glossina palpalis*, the relapsing fever by the vulgar bedbug, whose attractions do not grow by being called *Cimex lectularius*, and the spotted fever of the Rocky Mountains (according to Wilson, Chowning, Anderson) probably by the euphonious *Dermacentor reticulatus*.

Moreover, plague bacilli (Yersin, Nuttall) and those of cholera and of typhoid fever have been found on flies, and lately the transmission of cerebrospinal meningitis has been connected with the action of fleas. That is why it appears that unless mosquitoes, bedbugs, flies and fleas have some means of proving their indispensability to civilized society, their extermination as preventive therapy against fever and ague, yellow fever, relapsing, and typhoid fevers, and the rest of our scourges will not be regretted by the vast majority of mankind.

Long before insects were hunted up in their haunts, bacteriology and physiological chemistry appeared in the field. Their influence on the study of infectious diseases and the organic metabolism I take to be known to all, and shall not consider, for that and other reasons, in the brief time at our disposal. The laboratory has proven an addition to our knowledge, to our practical success in curing and preventing disease, and also to the methods of those who are taught to work with them. That is why I am quite ready to subscribe to what your own Chittenden proclaimed only a year ago, that the laboratory teaches the student to see and to think for himself. That it affords that training which leads to the development of the wise and skilful practitioner of medicine, and shows him how to throw to the winds the writings of others and to believe what he has himself seen. But the student should not forget that the eye sees only through the brain that controls it, that it takes time and long honest effort to train it, that there have been and are other eyes and other brains beside his, and that the wide, wide world of medicine, with its aims and obligations, lies far beyond the walls of a single laboratory, or of all the laboratories, and that all of them must find their center in the clinical ward, at the bedside, in municipal and state sanitation, and all the hygienic and social interests of mankind.

Unfortunately the opportunities for practis-

ing both senses and brains in clinical wards are not numerous in the medical schools of the United States. They will not improve until each school has its own hospital. The State Universities or individual rich men and women can take no better part in the promotion of the welfare of the people than by seeing to it that no young man begins his work among the public at large before he has obtained general experience in a hospital under the eyes of his teachers. Remember the Scotch king of olden time who licensed a doctor only after the applicant could prove a twenty years' practice among his enemies.

The observations at the bedside do not always bear out those made in the laboratory. Clinical experience, when repeated untold times, precedes quite often its reaffirmation by experiments. Therapeutical methods when firmly established are often contradicted—for the time being—by the insufficiency of laboratory methods. Such an instance is in our modern therapeutics the use of alcoholic beverages in septic fevers. Modern laboratory results tell us that the administration of alcohol before a dog, rabbit, guinea-pig, pig, mouse, or chicken is exposed to the action of a narcotic virus, makes it more susceptible; that 5 c.c. of absolute alcohol, when given to an animal of 1 kilo, is a fatal dose. That is true, and what does it prove when this observation is applied to a man of 75 kilos? (S. Meltzer.)

It proves that it is worthless. For that man was never given for therapeutic purposes 375 c.c.—12 ounces—of absolute alcohol so long as the world was created. Besides, it would never be given in one or two doses, would not be introduced into the stomach by a tube, where it would coagulate the albumin of the tissue and cause ulceration, but it is given in dilution, in small and often-repeated doses, and is slowly absorbed. Besides, the infection to which the animal is exposed in the experiment is a sudden one; it is overwhelmed by it, and dies. Man when infected receives a certain amount of infection only; while it multiplies in his circulation it creates an adequate amount of antitoxin, which aids the alcoholic beverage in its antiseptic action.

We are told by some that alcohol increases blood pressure, by others that it does not. We have reason to believe that it is a depressant for the nerve centers, but also that it causes the contraction of a muscle when applied to its motor center, that it slows the heart beats when applied to the periphery of the vagus nerve, and dilates the blood vessels of the submaxillary gland when applied to the chorda tympani. Alcohol also flushes the face by stimulating the vasodilators; and by irritating the tone of the vasomotor center it stimulates normal function in the peripheries. Thus it counteracts the force of an infection which dilates the vast territory of the splanchnic nerve, with the high internal temperature and cold extremities; that is why it

is beneficial in collapse when administered in the bold doses that are indicated. When Meltzer, whom I am glad to follow in his reasonings, founded on physiological experiments and ripe clinical experience, adds to these considerations that 1 c.c. alcohol per kilo given in twenty-four hours furnishes 500 calories to a man weighing 75 pounds, he furnishes an additional proof to the benefits to be derived from alcoholic beverages.

The 375 c.c. of absolute alcohol mentioned before, correspond to a liter of strong whisky, two bottles of port or sherry, or six bottles of hock wine or claret—doses hardly ever given or required. Whisky or brandy is hardly ever given undiluted; because in that condition it would share to a certain extent the methods in which the laboratory workers kill the poor animals and thereby try to convince us that alcohol is as reprehensible as morbid fanatics want us to believe. But practical observation shows us that there is at the present time no antiseptic which can be administered internally of equal value with alcoholic beverages. The worst forms of typhoid infection die without them; the septic forms of diphtheria which are inaccessible to antitoxin may still be reached by whisky or brandy. In this seemingly hopeless condition it may be life-saving. Theoretical objections, ethical opposition, should not count. A child of three or four years may be saved by 100 or 200 cc. of whisky given daily, if by nothing else, and escape the undertaker.

There are many other apparent incongruities between laboratory and therapeutical experiments. Both must be considered of equal value, when repeated a sufficient number of times, in determining the practical value of a method or remedy. It must be understood, however, that in internal medicine we require large numbers of observations, for the human organism is not a test tube in which the external circumstances are always uniform. That is why the observations in operative medicines are, in comparatively small numbers, apt to be more correct than those in which, in internal organs, the blood or the nervous system are to be reached by drugs or by imponderables. To the class of remedies belongs also water in its manifold therapeutic use.

Hydrotherapy is very old. Hippocrates and many after him knew its beneficial effects. It was a power in medicine as it was in the imagination of the people that used water in the fight against demons and disease. A vessel filled with water stood in front of the dwelling that held a corpse, one was thrown after it when it was carried out, the participants took a bath, the body was interred beyond the river; the sick would go into the water like, according to Bartels, the Moquis, when they had fever, to keep away the demons. Modern hydrotherapy, however, has returned to Hippocratic principles. It does not mean cold water alone, hot water alone,

or a single method of its use. The knowledge of its usefulness is not due, as the credulous multitude would have it, to the inspiration of a coarse Silesian peasant; it finds its indications in the teachings of physiology and the rational observation at the sick-bed. The cold which contracts the blood vessels must increase blood pressure, the specific gravity of the blood and the number of erythro- and leucocytes in the capillaries; the warmth which dilates the blood vessels lowers blood pressure. The effect of different temperatures depends to a great extent on the condition of the body at the time of the administration. That is why cold applications in scarlatina or measles are not indicated, but cold affusion in a warm bath or immersion in cold water with subsequent warming; why hot bathing in cerebrospinal meningitis has been advised; why, in 1850, while in charge of a cholera hospital I could employ the hot immersion, afterward recommended by Rumpf, of cholera patients; or why foolhardy patients with myocarditis are occasionally carried out feet forward from a Turkish bath establishment. The Romans knew some thousands of years ago that "when two do the same thing it is not the same thing."

There are other remedies of great value which are waiting for experimental laboratory corroborations of their effects. To that class belong arsenic as a nutrient and nervine, and phosphorus as a tissue builder in subacute and chronic inflammations of the bones and in rachitis.

In approaching the subject of modern means of therapy, let me beg your indulgence for hardly mentioning to-day sero- and organo-therapy. The latter finds its best representative in the action of the thyroid gland in different forms of cretinism. Time is short and opportunity fleeting. We all, I think, agree about them, and about the action of antitoxins—those we have now and those that are sure to come—and their preventive influence in diseases and epidemics. We know, for instance, that in the war of 1870 the German army, vaccinated and revaccinated, lost of smallpox 459, and the French 23,000 men. With the growing interest in them, shared by all of us, the scoffing detraction of drugs will make itself heard over and over again. That is why I crave the privilege to say again, as many times before, that I believe in medicines of all kinds, provided their action is understood, and they be given in proper cases, times and doses. Iron in the shape of a pill is as welcome as iron when used as a knife, or a saw, or an artery clamp.

Permit still another word on laboratory work in medicine in general and therapy in particular. Nearly all people agree nowadays on the subject of animal experimentation. Still it is claimed by its enemies that mistakes may be made and have been made, but it is admitted that the most important progress in modern

medicine could not have been made without it. The claim that even medical men like Tait have joined the ranks of what they like to call "anti-vivisectionists" can be substantiated. What of it? Operative dexterity which cleans out a pelvis as neatly as if it had been done by that great and humane medical gentleman, Spencer Wells, does not prove its living or dead possessor to be ethical or a friend of anybody but himself. The knowledge of the action of the roots of spinal nerves, their differentiation into motor and sensitive fibers, the localization of cerebral faculties, of the centers of temperature, respiration, speech, sight and hearing, the functions of the stomach, intestines, and the visceral and ductless glands could not have been accomplished without animal experimentation. A great many remedies—strychnine, curare, tuberculin and antitoxin, immunization and serotherapy could not have been studied without it. The tens of thousands of diphtheria and hydrophobia patients saved, the increased knowledge promising future curative procedures in tuberculosis, pay amply for the lives of rabbits and guinea-pigs sacrificed in behalf of the human race. The employment of anesthetics has made experiments more than ever humane. Experiments on man, always shunned and condemned, have never been condoned by the medical profession; and better informed legislatures will rather spend their time and efforts on the suppression of quackery and fads than of the exertions undertaken in the interests of suffering mankind.

Just think of the preventive measures used for securing asepsis, the care bestowed on the patient, the air of the room, on dressings, on instruments, and particularly on the sterilization of the finest instrument of them all—the human hand. One-third of a century ago when you operated on a strangulated hernia it was discourteous not to invite every bystander to examine the wound. My great teacher in Göttingen, Conrad Langenbeck, a little over half a century ago, was professor both of anatomy and of operative surgery; forty years ago my surgical colleague in the New York Medical College amputated the limb of a corpse and a limb of the living in the same forenoon, on the same table, in the same purple gown. At the present time what therapeutical change! The very literature of hand-cleansing grows daily. Carbolic acid solutions, fat corrosive sublimate, alcohol, soap and water and brush, gloves of twine and of rubber, rival in their attempts at removing the innocent epiphytes of the hand, and the *Staphylococcus albus*, and other still more harmful microbes, and to insure the success of an operation. And still there is the complaint of insufficiency of every method and the attempt at finding one more efficacious.

(To be Continued.)

THE GOPHER: A POSSIBLE SUBSTITUTE FOR THE GUINEA-PIG. A PRELIMINARY REPORT.

BY S. W. HEWETSON, M.D.,

OF PINCHER CREEK, ALBERTA, CANADA.

ONE of the greatest handicaps experienced by medical practitioners in the far West is due to the absence of the many laboratory facilities at the ready disposal of their more fortunate Eastern confrères. After having had the privilege of acting for several years as assistant to Dr. E. L. Trudeau, the writer not infrequently in obscure cases feels heavily handicapped, without the many aids in diagnosis available in such an excellent institution as the Saranac Lake Laboratory. For instance, in appropriate cases, he would often highly value a little timely assistance from his old friend, the guinea-pig. Anyone who has had an opportunity of studying the habits of the gopher and the guinea-pig cannot have failed to observe the close resemblance they bear to each other. Except in the winter months gophers are readily obtainable throughout Alberta and the West generally, but hitherto they have done nothing to justify their existence. Dr. Baldwin, of Saranac Lake, very kindly made a thorough review of the literature on tuberculosis, but failed to find any reference to experimental work with gophers. These several reasons led to the following experiment, the object being to determine the susceptibility of the gopher to tuberculosis:

March 14, 1905. Twelve gophers were procured and nine of them were given, subcutaneously, 2 c.c. of a solution containing 0.5 c.c. of tuberculous sputum. This solution, under the microscope, showed from two to five tubercle bacilli in each field. Their rectal temperatures were found to vary from 99.5° to 102.5° F.

March 21, 1905. No. 1 was accidentally killed; post-mortem showed no evidence of disease. April 14, 1905 (twenty-one days after inoculation), No. 2 was killed (chloroform). Examination showed some induration at site of inoculation, slight enlargement of inguinal glands, and, when compared with No. 1, or with guinea-pigs of the same size, decided enlargement of the spleen. The surface of the latter showed a few suspicious grayish areas, scarcely larger than a pin-point, but microscopically no tubercle bacilli were found, except from site of inoculation. At this stage most of the inoculated gophers showed a decided loss of weight.

April 13, 1905 (thirty days after inoculation), No. 3 died. Examination showed great emaciation. Typical tuberculous ulcer at site of inoculation. Distinct enlargement of inguinal glands and spleen, the latter being three times its normal size. Its surface showed numerous miliary tubercles, the largest being the size of a pin's head. The liver was also affected, but the tubercles were smaller and less numerous. Lungs normal. Tubercle bacille were found in spleen, liver and site of inoculation. At this stage four of the inoculated gophers were given tuberculin

subcutaneously in amounts varying from c.c. 0.01 to c.c. 0.1. The tuberculin, however, was old, and no definite reaction was obtained. When compared with the first record, all of the inoculated gophers showed at this stage subnormal temperatures. In only one case was the temperature over 99° F., the lowest being 95° F. in No. 4 (dying).

April 14, 1905 (thirty-one days after inoculation), No. 4 died. Examination showed practically the same condition as in No. 3, except that the spleen was somewhat larger. The spleen was examined by Dr. Baldwin, of Saranac Lake, who reports as follows: "It shows undoubted tubercles, and resembles that of the guinea-pig. I see no reason why they (gophers) might not be used instead of guinea-pigs for diagnostic purposes, or experimental work."

April 15, 1905 (thirty-two days after inoculation), No. 5 killed. Less emaciation than in previous cases. The spleen, however, was at least five times its normal size, and the tubercles, both in it and in the liver, were more numerous and distinctly larger. Lungs normal. Tubercle bacilli were also more numerous, as many as five being observed in one field.

April 16, 1905 (thirty-three days after inoculation), Nos. 6, 7 and 10 (the latter a control) were killed. No. 10 was well-nourished and showed no evidence of disease. Examinations of Nos. 6 and 7 revealed conditions similar to those already noticed.

April 24, 1905 (forty-one days after inoculation), No. 8 died. Examination showed advanced tuberculosis. May 9, 1905, No. 9 died. No examination made owing to writer's absence. May 18, 1905, Nos. 11 and 12 (controls) examined. Found to be well-nourished and showed no evidence of disease.

Summary.—This experiment distinctly proves the susceptibility of the gopher to tuberculosis, and places in the hands of medical men residing in the gopher belt an additional aid in the diagnosis of obscure cases, be they renal, pulmonary or glandular. Its use would be limited to cases in which the presence of tubercle bacilli could not be demonstrated with the microscope, owing to their being present in small numbers. To obtain quicker results the injections might be made in larger amounts directly into the peritoneal cavity. If this were done, however, a certain percentage of the test animals would probably die from acute septic conditions; the mortality from this cause depending on the virulence of the associated infection. It is to be hoped that further experiments will show that the gopher possesses the same happy susceptibility to other diseases as he displays toward tuberculosis.

MAMMARY SYPHILIS WITH INVOLVEMENT OF THE AXILLARY AND SUPRACLAVICULAR GLANDS SIMULATING CANCER OF THE BREAST.

BY EDWIN BEER, M.D.,

OF NEW YORK;

ATTENDING SURGEON, SYDENHAM HOSPITAL; ASSISTANT VISITING SURGEON, MONTEFIORE HOME AND BELLEVUE HOSPITAL, OUT-PATIENT DEPARTMENT, FOURTH DIVISION.

THE following case is reported, as it presents a very unusual and interesting condition. The patient, a married woman thirty-five years of age, had noticed about four months prior to my examination a mass in her left axilla; a few weeks later she noticed a similar mass in the upper half of the left breast. Whether the masses appeared in the order given, she is not sure. The tumors worried her, though they caused no inconvenience or pain. She consulted five or six physicians in her home in the South, and an operation was advised based on the diagnosis of cancer of the breast. Considerably worried by the prognosis and diagnosis of the local physicians, she came to New York to another physician, who brought the case to me.

The patient was a middle-aged, rather thin woman. She was anemic in appearance and nervous. Her general condition suggested nothing cachectic. She was perfectly well but for the tumors above referred to and complained of these alone.

I found in the upper half of her left breast, imbedded in the glandular tissue, a non-tender mass measuring 2 x 3 inches. It was freely movable on the deeper parts and non-attached to the skin. Its borders were indistinct, its surface smooth, and its consistency moderately soft but not fluctuating. The nipple was normal. In the region directly below the middle of the left clavicle there was a similar mass apparently lying below the pectoralis major muscle and pushing this forward. This mass was about half the size of the tumor in the breast. Its borders were more distinct, and it felt rather spherical. In the left axilla there was another soft mass, almost the size of a hen's egg. It was freely movable and non-tender. In the same axilla there were a number of other enlarged glands. All of these were of the consistency of inflammatory glands. In the left supraclavicular region another similar mass fully as large as a hen's egg and several small glands of the consistency of chronically inflamed glands were to be felt. The large mass in the supraclavicular region corresponded in all its characteristics to that in the axilla. In the right axilla and right supraclavicular region there were a number of enlarged lymph-nodes of normal consistency. On both sides of the neck the posterior cervical lymph-node chains were enlarged and distinctly palpable. Otherwise the patient showed nothing.

At first blush such a case would impress one as cancer of the breast, but that impression could not last. If it was a cancer with axillary and supraclavicular glandular involvement it was a

decidedly unusual manifestation of that disease. The consistency of the tumor in the breast and the consistency of the involved glands was softer than that of cancer cases. Large masses in the axilla and the supraclavicular regions are also most unusual and uncommon in cases of carcinoma of the breast, where the glands usually remain small and feel hard and very firm. These peculiarities, together with the presence of the enlarged posterior cervical lymph-nodes, made me doubt the diagnosis of cancer and suggested the working diagnosis of mammary syphilis with glandular involvement.

To confirm my diagnosis, I took the husband of the patient aside, but he gave me no information. Meanwhile the patient's physician found out the following few but suggestive facts from the patient herself.

The patient had been married twice; sixteen years ago and again this year. Her first husband had been ailing for years and had infected his wife with some venereal disease for which she was treated. The physician who treated her then told her that her husband had infected her. She became pregnant, and at this time developed a rash which appeared on her upper extremities. "Lumps" appeared on her head and ulcers on her vulva. The child was born in the sixth month. After this the patient separated from this husband and has been troubled ever since with sore throat, pains in back, knees and shins.

This meager history helped to confirm the view of the case expressed above, and the patient was put on mercury hypodermically and iodides internally in increasing very large doses. This treatment was carefully followed for one month, when I examined the patient for the second time. The following were the local physical findings: The breast was normal. The tumor in the upper half was absolutely gone. The large masses in the axilla and in the supraclavicular region were gone. The mass that lay beneath the pectoralis major muscle was still palpable, though much smaller. The lymph-nodes were smaller in the different regions above mentioned. The patient had gained in health. She felt stronger and had become heavier. The old pains in her knees, shins and spine had disappeared completely.

The same treatment was kept up another month, when I examined the patient again. Her general condition had improved still more. Locally the tumors had disappeared completely. In the position of the mass below the clavicle under the pectoralis major muscle there was the slightest induration. That tumor had disappeared and left a little thickening in the tissues. All the posterior cervical glands had disappeared. There were still a few glands in the opposite axilla.

In this most unusual case the specific treatment verified the diagnosis suggested at the first examination. It is needless to compare this case with the other cases of mammary syphilis in the

literature. Suffice it to say that there are less than 50 reported cases of syphilis in this location, and almost all of these cases failed to simulate carcinoma with axillary and supraclavicular glandular involvement, as did the one just reported.

116 West Fifty-eighth Street.

THE DIAGNOSIS AND TREATMENT OF ANEMIA.¹

BY HARLOW BROOKS, M.D.,

OF NEW YORK;

VISITING PHYSICIAN TO THE CITY HOSPITAL, PATHOLOGIST TO MONTEFIORE HOSPITAL.

(Continued from Page 778.)

Chlorosis.—I know of no other condition in which an impartial survey of all the clinical and laboratory evidence is more important than in the diagnosis of chlorosis. There is nothing, not even the sex or period of life, associated with this anemia which can be looked upon as characteristic of chlorosis; the blood conditions are neither well marked or clear cut; we must not therefore depend on a single symptom or collection of symptoms, but on the entire picture, and, perhaps more important than anything else, on the exclusion of all other conditions.

Among the most important diagnostic signs are the age and sex of the patient, for, though we admit the possibility of chlorosis existing in the male, we know that it is rare in men and that it commonly develops in girls at about the time of puberty, although it may recur—in fact often does—in after-life. As a rule, also with many exceptions, it is seen in its typical form in girls whose sexual development is deficient. The general picture of the chlorotic girl is too familiar to all of you to merit a special description.

The blood findings in chlorosis are extremely simple; as a rule the number of red corpuscles is relatively normal, and the chief abnormality, in fact the one which characterizes the disease, is the reduction of hemoglobin. This may fall to less than 20 per cent., and yet the number of red cells remain practically normal. Nucleated red cells, normoblasts and, rarely, megaloblasts are seen, also many malformed and degenerated red cells are invariably present. The leucocytes as a rule remain normal.

Chlorosis is very apt to be seen mixed with secondary or symptomatic anemias, which complicate the picture, and often the clinician fails in treatment where an early and easy recovery is contemplated. Where chlorosis resists intelligent iron medication, the clinician should seriously question as to the possibility of complicating secondary anemias, although I admit, of course, that occasional cases of chlorosis are very difficult to cure. In my personal experience, and it has been my fortune to see a large number of cases of wealthy young girls in the practice of a well-known gynecologist, I must say that pure and uncomplicated cases of

¹ Read before the Erie County Medical Society, June 6, 1905.

chlorosis are rare in this class, much more so than is generally thought. Hospital practice, where the hygienic conditions in which the young women are brought up are altogether bad, leads me to the same conclusion that primary and uncomplicated cases of chlorosis are relatively rare in any plane of society, and that careful study of these cases will disclose other and often unsuspected conditions which complicate and account in large part for the difficulty found in treating to a successful issue a good many of these cases. I know of no one blood condition which yields better or more certain results to treatment than uncomplicated chlorosis, but when associated with symptomatic anemias they are often very unsatisfactory.

Secondary Anemias.—The simplest form of secondary anemia is found to follow hemorrhage, particularly acute hemorrhage. As a rule in these conditions, the history of the case or the presence of some external sign of bleeding, either the open wound, the throwing out of clots from the various orifices or the presence of blood-stained vomitus, tar-colored stools and the like make diagnosis easy. There are, however, other cases in which the hemorrhage may take place into the closed cavities, as the hemorrhage into the peritoneal cavity from a duodenal ulcer, from early ruptured tubal pregnancy, and occasionally from unsuspected rupture of the spleen or liver; in these cases a careful study may be necessary for a correct understanding.

As a rule the diagnostic signs of an acute hemorrhage are well recognized—the pallor of the skin and mucosæ, cold and clammy extremities, associated with profuse cold sweats, slight to severe dyspnea and rapid, irregular, soft and thready pulse. The heart action is rapid, irregular, and the sounds may become loud and almost metallic while variable hemic murmurs develop. The urine often increases rapidly in abundance; the condition soon passes into one of complete shock. Symptoms due to cerebral anemia develop, nausea, flashes before the eyes, ringing in the ears, and occasionally loss of consciousness and mild delirium; with these symptoms we must take into account the psychic disturbances which often appear in susceptible subjects at the sight of even small amounts of blood or with the idea that bleeding is taking place or death imminent.

The alterations in the blood, as shown on examination, are usually unnecessary for diagnosis; briefly, they are rapid decrease in the number of red cells, with proportionate loss in hemoglobin, the latter becoming most evident some days after the hemorrhage. The watery portions of the blood are increased, sometimes with more or less swelling and maceration of the corpuscles; absolute increase in the polynuclear leucocytes follows. As a general thing the rapidity of clot formation is augmented. The fluids of the blood are quickly replaced after the loss of blood has been checked, and in

reconstruction nucleated red corpuscles appear in the blood in large numbers.

In simple chronic anemia as results from chronic hemorrhage, from renal disease and numerous other conditions which produce this extremely frequent condition, all grades of severity may be seen. It is often surprising, the very slight amount of symptoms or blood lesions which develop after considerable chronic losses of blood, as from epistaxis or menstruation. On the other hand, even slight losses, as from oozing mucous surface, may produce marked anemic conditions.

The signs and symptoms of simple secondary or symptomatic anemia may vary from a slight yellowish pallor, possibly with slight dyspnea on exertion, to so severe a degree as to resemble the terminal stages of pernicious anemia. There is nothing in the physical appearance of these cases, and nothing in their symptoms which permits you to differentiate from pernicious anemia except the absence of any adequate explanatory cause in the last-mentioned disease, whereas, in the former, some cause is to be found if your study is sufficiently extended. It is to these cases of anemia that I wish particularly to call your attention. First, it is well for us to acknowledge that the various stages or grades of this anemia may be caused by almost any factors productive of secondary or symptomatic anemia, and that the alterations in the blood are not of different kinds, but rather variations in degree; we shall find, however, that in a few forms certain conditions are found in the blood which are indicative of the cause.

In general, the red corpuscles in these types of anemia incline more to under size; microcytes are abundantly present in the severer grades, while macrocytes, which we found more frequent in pernicious anemia, are usually in relatively less number. Poikilocytosis in all its stages, from slight distortion of the cells to the most extreme deformity, is more or less marked in all cases. Alterations in the staining reaction of the red cells, due probably to chemical changes in the hemoglobin, are very commonly found, in the more marked instances amounting to polychromatophilia, but in the lesser degrees shown only by a less intense reaction to the dyes for which hemoglobin has an affinity. In the typical case of secondary or symptomatic anemia the hemoglobin index is reduced, while in the pernicious form it is increased; this would be a most important diagnostic sign were it not that in nearly all grave cases of secondary and symptomatic anemia the same high color index is presented by many of the cells, particularly by the microcytes and poikilocytes. Alterations in the hemoglobin, mostly in long-standing cases, may result in a formation in the cytoplasm of the red cells of dark brown, almost black, basophilic granules; these occur with particular frequency in the cachectic diseases.

The leucocytes in symptomatic cases occa-

sionally indicate the nature of the cause, as will be discussed later in the paper, but in a considerable number of anemias of this type there is both a relative and absolute increase in the number of the polynuclear neutrophilic leucocytes.

As will be inferred, the number of the red cells and the percentage of hemoglobin varies enormously, taken together, but neither separately in the more grave cases, they are a measure of the gravity of the case. The occurrence of large numbers of normoblasts in secondary anemia, when they have been few or absent before, I am inclined to look upon as a favorable prognostic sign. Megaloblasts are found only in the severe cases, and their occurrence here is often disputed by purely laboratory men who have little touch with clinical medicine.

In the more severe cases albuminuria develops, just as in the primary anemias, probably as a result of alterations in the albumins of the blood and perhaps from its hydremic condition.

Though the diagnosis can be usually made from the clinical picture only, yet its differentiation from pernicious anemia or chlorosis is by no means simple, and often demands the most careful blood examinations; as a rule, however, by all odds, the most important part of the examination is the determination of the hemoglobin content. As has already been stated, there are certain conditions with which, owing to local vasomotor states, the skin may appear pale and yet the patient be in entirely normal condition in so far as the blood is concerned; these cases are at once excluded by the hemoglobinometer.

It is customary to classify the secondary anemias as to their causation, and since certain essential points are brought out in the discussion of this classification, we shall briefly so consider a few of them.

Those occurring after hemorrhage differ in severity according to the amount of blood lost, according to the previous condition of the blood and the general body tissues, and more particularly as to the number of hemorrhages and the relative time of their occurrence; for example, several successive hemorrhages occurring at intervals are apt to cause a more grave condition than a single profuse hemorrhage in which perhaps the same amount of blood may have been lost. This is doubtless due to the exhaustion which a prolonged demand on the blood-forming organs induces. The hemorrhage may take place from any cause, as from perforation of an ulcer, from the necrosis of a new growth, or perhaps from one of the hemorrhagic diseases; the result in any case is the same in so far as the blood is concerned.

It is well recognized that unhygienic conditions cause secondary anemia, in just what manner we are unable to explain, for experimentation in depriving animals of proper light, air and food affects as a rule but little change. In man, however, where all these deficiencies are more or less associated, it seems very probable

and almost certain that this combination is a causative factor: Prison anemia is an example.

Voit has shown that anemia quickly develops in cases where the albumin of the food is deficient, and v. Hösslein has further demonstrated that anemia follows only when the iron containing albumins are absent. In this relation it is known to be a fact that deficient absorption of these food principles is often at fault, as in various types of digestive disturbances, and not only does the patient suffer from defective absorption in these cases, but intestinal or gastric fermentation also undoubtedly acts in the production of certain toxins which enter the circulation and so tend directly to the augmentation of the anemia. This is very well illustrated in chronic constipation, colitis, chronic gastritis, enteritis and many similar states.

Other examples of toxic production of anemia are very numerous. Autotoxins from defective action of the ductless glands, as in Addison's disease and myxedema, also from deficient renal activity, are undeniably frequent, and those from bacterial toxins, from alcohol, nicotine or from the more common metallic poisons as lead, mercury and arsenic, are all well recognized. In most of these instances the anemia is probably more or less the result of hemolysis directly resulting from the action of the poison on the blood. In some of these toxemias the blood very frequently shows a polychromatophilic degeneration of the red cells, which is particularly marked in most cases of lead poisoning. The occurrence of this change in the red cells is more or less diagnostic of the toxic anemias, although also seen in the severe grades of primary and some other secondary or symptomatic anemias.

In chronic tuberculosis, in syphilis and other chronic specific diseases the anemia is also probably caused directly by hemolysis. In certain of these conditions, as in tuberculosis and typhoid, the character of the process may be suspected by a study of the relative percentages of the leucocytes, and in suppurative processes the nature of the causative conditions may be indicated by the presence of a polynuclear leucocytosis and occasionally by the detection of iodo-phylic leucocytes.

Helminthiasis is so frequent a cause of secondary or symptomatic anemia that no case should be considered without bearing this possibility in mind. Practically any of the intestinal parasites may cause anemia; this is particularly true of the hookworm and the *Bothriocephalus*, although the tinea, the round worms and even the *Oxyurus* may cause not only serious but actually fatal anemias. The action of these organisms is probably threefold, in some cases at least. Thus acting as an intestinal irritant, they prevent proper absorption of the ferruginous albumins; in some cases, particularly in hookworm infection, they often cause large and protracted intestinal hemorrhage, but probably their most important action is in the formation of an ex-

ceedingly active toxin which causes blood destruction. Happily, in most of these cases a clue to the cause is shown by a relative increase in the eosinophilic leucocytes; this blood finding is usually present in all these infections. Parasitic infection should always be suspected in cases of secondary anemia, and the feces should invariably be examined for ova and discharged parasites. The anemia and eosinophilia of helminthiasis is not characteristic of intestinal parasitic infections only, but also develops in echinococcus invasions and particularly during the encysting stage in trichinosis, also to a lesser and more inconstant degree in malaria and other general or local parasitic diseases of animal origin.

In malaria, filarial diseases and other parasitic conditions where the organism immediately enters the blood stream, attacking the red blood corpuscles; the cause and manner of production of the anemia by direct destruction of the erythrocytes is very apparent.

In severe forms of parasitic anemia the blood picture is often practically identical with that of pernicious anemia, and nothing save a careful examination of the feces, particularly after the administration of anthelmintics, will differentiate these two conditions. So common is this error of diagnosis that some authorities assert that pernicious anemia is a result of intestinal parasitic infection. Certainly a considerable number of cases reported as progressive pernicious anemias are in truth secondary anemias due to intestinal parasites.

The anemias occurring with neoplasms should receive special consideration, on account both of their often serious nature and their importance as a diagnostic sign. Thus it has been certainly shown that innocent growths, no matter of what extent, rarely produce anemia, whereas the malignant growths, even those well localized and of small size, almost always do. When iron administration serves to produce early and marked improvement in the anemia associated with new growth, we may feel fairly well satisfied that the growth is either innocent or of a very low grade of malignancy. In this regard we, however, recall that innocent growths associated with hemorrhage, as from submucous uterine fibroids or nasal polypi, do cause anemia. The malignant tumors undoubtedly produce the anemia, not so much through their abnormal demands on the nutritive principles of the blood, but mostly or wholly through the formation of some indefinite toxin, acting very much as those similar factors concerned in the other forms of cachectic anemia. In the anemia of the new growths the blood picture is very apt to resemble that in the other severe symptomatic anemias or in a primary pernicious anemia; thus showing a high color index with a small red cell count associated with the occurrence of macrocytes, microcytes, many poikilocytes and both normoblasts and sometimes megaloblasts. This seems to be

particularly the case with gastric and intestinal tumors.

In the treatment of the anemias there are certain general hygienic principles which seem to apply with about equal force in all forms. Two of the most important of these are air and sunlight. In mild cases, walking, driving or riding in the open air are among the very most satisfactory means with which to combat the disease. When the condition of the patient is too serious to permit of this, as in the anemias of convalescence, after serious hemorrhage or in the severe grades of primary or symptomatic anemia, the patient may be provided with sufficient bed-clothing according to the weather, the windows opened wide and the bed so placed that the rays of the sun fall upon the patient; the eyes may be protected from the glare by properly arranged drapery suspended from the head of the bed or by lashing a parasol to the bedstead. Where circumstances permit, the bed can be profitably placed on a piazza or in the direct open. Many of the more modern hospitals now provide roof gardens, entirely uncovered during clear weather, where the patients may remain throughout the day. Private houses are also taking advantage of the same idea, and in the dusty cities there is no playground, winter or summer, for anemic and delicate children, more satisfactory than a properly arranged roof garden, as has been recently described by Northrup. These measures appear particularly efficient after septic processes also in cachectic conditions, and recovery without other medication, except generous supplies of proper food, is often marvelous. Patients in tent wards often improve rapidly, and the value of tent life is by no means limited to tuberculous diseases.

The same scheme can be well applied on boats. I know of no more satisfactory treatment of the marantic anemias and malnutrition, particularly in infants. In the babies' floating hospitals, conducted during the summer season in New York, the children are exposed on open decks, some under awnings, some without, some in cribs and others allowed to run about the deck. The results achieved even after but two or three days of this treatment are almost marvelous, and marasmic, putty-colored infants taken from the narrow, sweltering streets of the tenement districts of New York after a few days become translated into healthy, lusty children.

These methods also often act with wonderful success in pernicious anemia. But recently I sent a patient suffering with advanced pernicious anemia, with but 40 per cent. of hemoglobin and a red cell count of less than 1,000,000, for a month's stay at Atlantic City. All the pleasant days were spent in a rolling chair. She returned with 15 per cent. increase in hemoglobin and our prognosis has been changed from bad to good.

With anemic children I have advised, during the warm months, almost no clothing, and a

wild life in the sunshine, air and warm rains. In chlorosis and the simple secondary anemias this treatment alone is almost specific, and even in the more serious cases it is very satisfactory and at least a most efficient adjuvant to other treatment.

Patients to whom this treatment is recommended often inquire as to the relative value of the sea or seaside or the mountains. In my experience in this matter the best results are obtained when the place most attractive to the patient is selected. Just at present I have a mother off at sea while, her daughter, suffering from practically the same type of anemia, is in the mountains. From previous experience with this family I expect equally good results in both, whereas, were the locations reversed, but little benefit would result to either. The mental attitude of the patient is never to be disregarded in this particular, for mental rest, enjoyment if you please, is a part and a very essential one of the cure.

Exercise can be very conveniently combined with this hygienic treatment, but it must be carefully supervised. In bed-ridden cases massage and passive movements are to be used, but with ambulatory patients out-of-door exercise is to be recommended, it being adapted in each case to the special needs of the particular patient. We must, however, constantly bear in mind the condition of the heart muscle in the grave anemias, and we must guard particularly against either mental or physical overstrain. Walking, driving and, where prudent, horseback riding are very satisfactory, but violent exercise such as swimming, rowing, mountain climbing, tennis and the like are to be restricted. As a rule, I do not approve of sports in which excitement plays an important part, though a certain amount of mental exhilaration often facilitates recovery.

Certain cases, on the contrary, demand almost absolute rest and quiet, particularly where the renal or cardiac complications appear. These cases should be placed in a quiet room, kept constantly in bed and placed under the routine of the rest cure, particular attention being directed to the diet. Rest cure, however, frequently causes the building up of abnormal quantities of fat without commensurate benefit in the condition of the blood; except in a very limited number of cases in which serious complicating lesions are present, I do not think much of this treatment.

Change of habitat and climate is desirable in a good many cases. As a rule, patients do best in temperate or cold climates. Occasionally a trip to Newfoundland, the Labrador coast, to the Canadian Northwest or Alaska is most beneficial; others require a more mild or even a hot climate, such as Asheville, Arizona, California, Honolulu or the West Indies. All things being equal, high—that is, very high—altitudes are to be avoided, largely on account of the condition of the heart and blood vessels, but if reached

slowly and under careful supervision, the change may result in very decided benefit. As is well known, the number of red cells goes up rapidly with increase in altitude, and in some cases this increase is permanent even on return to the usual levels. As a general rule, anemics from a low altitude do best in higher, and those from the higher levels are most apt to improve best under an increased atmospheric pressure.

The prevalence of anemia in gastro-intestinal disorders and of gastro-intestinal disorders in anemia needs no mention to you, and, next to the importance of hygienic measures, I believe that no one routine treatment yields such brilliant results as careful study and treatment directed to the gastro-intestinal tract. So frequently are diseases of this tract the primary cause or chief complication of anemic conditions of all grades that many clinicians make a routine preliminary use of purgatives and thoroughly cleanse the intestinal tube before instituting any other methods of treatment. Undoubtedly one of the most important results attained from the use of purgatives is the dislodgment of possible intestinal parasites, and it is well to examine carefully the movements following purgation for parasites or their ova. Where the general condition of the patient permits, I thoroughly commend this treatment, and the purgative may be logically followed by an anthelmintic, say thymol, male fern or santonin. It is of course quite unnecessary for me to emphasize the importance of careful attention to the bowel throughout the course of the disease, particularly in habitually constipated women, and the importance of this matter should be made clear to the ambulatory patient, who often has very inadequate and negligent ideas as to proper intestinal hygiene.

The frequent occurrence of gastric atrophy or dilatation in anemic disorders is well recognized, and gastric lavage and like local measures are often necessary. Predigested foods may be required with special intestinal medication. In this respect I wish to call your especial attention to the value of dilute hydrochloric acid or of nitro-muriatic acid in the treatment of pernicious anemia. A considerable list of cases resulting in apparent recovery, or at least in marked improvement, has been reported recently. The use of these simple drugs, combined in certain dispensary cases in my knowledge, with but little in the way of proper food or hygiene, has met with very excellent results. Salol, beta naphthol, bismuth subnitrate and other similar agents designed to limit or prevent abnormal fermentation are used with benefit. I think there can be but little doubt that the checking of abnormal fermentation limits at least the production of excessive amounts of hydrogen sulphide gas and the transformation of certain amounts of the iron of the food into insoluble sulphide of iron. The occasional exhibition of the saline aperients seems to work to the same purpose and to favor the absorption either of the iron of the food or

that in the medicines given. I also believe that in cases of atrophy of the gastric or intestinal mucosa, such as is commonly found in pernicious anemia, the use of various digestants is indicated.

In all cases of anemia, great attention should be paid to the diet. In this regard we must of course primarily consider the general condition of the patient; thus a diet high in albumins can hardly be recommended in a case of nephritic anemia or in that following acute articular rheumatism or gout. The choice of a diet must rest largely on the individual case then, and on the state of the digestive organs, but particularly bearing in mind, as Voit and v. Hösslein have shown, that the foods rich in albuminoid iron are chiefly beneficial. Among these are the meats, particularly the red meats, with good beef in the form of steak or roast leading; broths, soups and other preparations are to be utilized as indicated. Certain foods will be mentioned under the heading of iron medication, but as very important among the albuminoid foods I wish especially to mention eggs, preferably taken raw, or less desirably, coddled or soft boiled. From six to ten eggs per day may be taken by the average patient without disturbance, and for many of those who refuse to take food in the usual way, raw eggs, which can be quickly disposed of and occupy but little bulk while of very high feruginous nutritive value, are an excellent and easily digested substitute.

Among the vegetables, spinach, beans, peas and asparagus are perhaps the most valuable. Fruits are to be used in abundance, particularly the acid fruits, such as oranges and apples, also strawberries, though their action is undoubtedly partly to correct any constipating effect of many of the medicaments which we employ; they also contain a certain amount of absorbable iron.

One food which I have used with excellent effect is bone marrow, prepared in the Indian style by simply baking a marrow bone. It is not only a very beneficial article of diet in these cases but is most palatable; it may also be given in the form of timbales in soup.

Blood, either fresh and still fluid or dried, is recommended by some. I have had no experience in its use, since as soon as the patients found what they were taking they refused to continue it. German authorities speak highly of blood soups, and even of blood sausage. Theoretically their use seems sustained.

Though milk is very highly recommended by many, notably by Stengel, I cannot speak flatteringly of it as an exclusive diet; combined with other foods it is valuable, and its tendency to produce constipation may be beneficially obviated by the addition of cream. Whole wheat bread, corn and rye bread, toast and zwieback are useful. In so far as possible considerable variation in diet should be prescribed and the food presented in as attractive a form as possible. It is of course unnecessary to say that all foods

should be well prepared and simple; highly spiced or mixed courses are to be in general avoided. Food should be taken at regular intervals and should always be slowly and thoroughly masticated.

The strictly medical treatment of the anemias is in certain cases most satisfactory, and in other instances most disappointing. In my opinion, this depends more on the case and the causes back of it than on the precise medicament employed. Thus the treatment of acute secondary anemias, as occurring after hemorrhage or the treatment of uncomplicated chlorosis, is easy, and results are quickly attained, whereas the treatment of pernicious anemia is usually unsatisfactory, even under the most favorable circumstances; certain of the symptomatic anemias are almost equally resistant, particularly when the causative factor cannot be directly attacked and eliminated. Before considering the subject of the medicinal treatment further, I wish to say that I thoroughly disbelieve that any specific results reached by any treatment in any one case signify that the same or even similar measures will succeed in another like instance. In the treatment, as in diagnosis, each individual case must be considered on its own merits and handled accordingly.

Iron in one form or another has long been recognized as the leading drug in anemia; as you are all aware, the method of action of iron in anemia is still in question, but none of us can deny its utility in the average case. It is out of place for us to discuss the theories of iron absorption to-night, as the subject would require a book in itself; I shall consequently consider it purely from the empirical standpoint.

In the simple acute secondary anemias and in chlorosis the kind of iron employed apparently makes but little difference. I agree with Hare that, as a rule, the inorganic preparations give best results, and of these I personally prefer the tincture of the chloride, or the carbonate or sulphate, freshly prepared or in the form of Bland's pill. I have used also the reduced iron, the oxide, and even metallic iron with nearly as good results; in fact, in these instances, the hygienic measures with iron in practically any form are equally beneficial. In other words, it appears to be the case which determines early cure rather than the form of iron. In the symptomatic anemias, results with iron alone are very uncertain, depending mostly on the general conditions back of the anemia; here one preparation of iron may often be without effect while other forms may act well. Iron therapeutics in these cases must be largely experimental. Under all circumstances the bowels must be kept open and attention to general hygiene considered. The use of chalybeate waters is highly commended by some, but I have always seriously questioned if their action was not more due to the water in itself and to the general conditions in which it is ordinarily

taken. Iron can often be well combined with other drugs designed for corrective adjuvant effect, or to facilitate absorption; thus I have often used capsules with a combination of oleoresin of capsicum with perhaps aloes and arsenious acid, strychnine or nux vomica. I have also found the old three chlorides mixture very beneficial used in many cases, particularly where gastric atony is present. Combinations with manganese appear occasionally to act well, though the theories on which the exhibition is based do not appear to be well grounded.

In my experience the organic preparations of iron have been far less satisfactory as a rule than the inorganic forms. I have from time to time employed most of them, and in occasional instances I have met with results where my usual inorganic preparations have failed. As I have already intimated, I have obtained much better effect with organic preparations in the form of eggs, bone marrow and other food substances rich in iron than in the use of the newer preparations themselves; although please do not understand me to discredit them. Many of them are of undoubted benefit and reach a certain class of cases in which inorganic iron is apparently without effect. In regard to bone marrow, I fully agree with Stengel, who has met with little effect from the employment of the glycerin extract or of other artificial preparations; in but one case have I met with success with this preparation, but as a food I rely greatly upon it.

I cannot speak from personal experience as to the value of iron introduced hypodermically, but on theoretical grounds I doubt its utility unless used in the form of blood injections, which I believe are now generally discredited.

In concluding our very brief discussion of the use of iron in anemia, for the subject is too familiar to you all to justify the use of more time, I do wish to say that in so far as my personal experience goes, little or no effect follows its exhibition alone in any of its forms, excepting as a food, in pernicious or the more severe grades of chronic symptomatic anemia. I have also been much discouraged with this drug alone in chronic and complicated cases of chlorosis.

Mercury is often employed very successfully; I have used it mostly as the bichloride in the three chlorides mixture, but it is equally efficient employed in small doses in selected cases as the bichloride in pill form. I have usually used it in very small doses except in syphilitic anemia, but its use is by no means limited to syphilitic anemia. I have, however, never employed it hypodermically except in syphilis, but its use in this manner is highly regarded by some therapeutists.

After iron, undoubtedly our most valuable drug used in anemia is arsenic. Unlike iron, this drug does appear to affect the primary anemias and many of those other states dependent on disease of the blood-forming organs.

It is ordinarily employed as Fowler's solution, though I have also received good results with arsenious acid. As a rule, I think that in serious cases the drug should be given in fairly large and increasing doses until the physiological effect is reached, though in some cases the smaller doses undoubtedly act best. It is commonly admitted that a varied increasing or decreasing dose acts, as a rule, better than a constant dose long continued. Arsenic can be very satisfactorily combined with many other drugs, as with iron, this combination being particularly efficient in chronic chlorosis, or with mercury, strychnine, quinine or other indicated substances. I have never used the drug hypodermically as recommended by Ziemsens and others, who hope by this means to avoid the gastro-intestinal irritation and at the same time to secure earlier results, and I have thus far seen no results following its administration as cacodylic acid or its salts, though the number of cases in which I have seen it so used is very small.

It is of course self-evident that drugs are to be used as indicated in the symptomatic treatment. Thus quinine is to be used in the malarial cases; hydrochloric acid, pepsin, capsicum, and other drugs where intestinal or digestive disorders are present. As I have already stated, symptomatic treatment occasionally meets with most flattering results in the exhibition of hydrochloric acid in pernicious anemia.

I have seen no benefit follow the inhalation of oxygen in any stage or form of anemia, though, as you know, it is often employed for this purpose. Neither have I as yet practised transfusion of blood. Theoretically, the ground on which this method is based is so insecure that I have never thought it worth while taking the risk. It has always seemed to me that the same effect, without the attendant danger, is gained by saline infusions, which often act with marvelous effect, particularly where the volume of the blood is deficient. The effect so gained is often but temporary, but in some instances it appears to be permanent and it at least tides over what might be fatal crises in some cases; it is particularly beneficial after severe hemorrhage or wherever increase in the volume of the blood is desirable. It has acted very well with me in the terminal stages of diabetes mellitus and also in nephritic anemia.

Conclusions.—The chief points which I have attempted to emphasize in this paper may be summarized as follows:

1. The most important step in the study and treatment of resistant anemia is first a thorough and complete examination of each case in its every aspect.

2. The technical difficulties of such an examination are not great, and the results more than repay the time required.

3. Both clinical and laboratory methods must be used and the united evidence impartially considered.

4. The treatment of anemia must be based first on a thorough study of the particular case in hand.

5. Greater results are to be expected by the employment of carefully considered hygienic methods than from the use of drugs alone.

6. Little or nothing of value has been recently added to the purely medical treatment of the anemias.

GASTRIC DILATATION.

BY ALLAN G. HURDMAN, M.D., L.R.C.P.S.E., L.F.P.S.G.,
OF DENVER, COL.

THE clinical picture of dilatation of the stomach was recognized more than a century ago; long before Kussmaul was able by means of his stomach pump to treat this disease, at that time considered incurable. His epoch-making publication regarding the subject appeared in 1869.

Considering the crude diagnostic methods prevalent at the close of the eighteenth, and beginning of the nineteenth century, it is not surprising that physicians were able to detect only the most advanced stage of the lesion. These were cases in which the stomach lay a hand's breadth below the umbilicus, or at times reached even to the symphysis pubis; and where the patients persistently vomited large amounts of stagnant food masses. The early stages of the process, which led to the dilatation, remained unknown; the autopsies then showed a stenosis of the pyloric end of the stomach as the cause of the trouble.

Thus it came about that the condition was termed, not according to its real anatomical origin, the "Pyloric stenosis," but was named from its most striking symptom, the "Dilatatio ventriculi."

This name is no longer appropriate now that we can recognize the disease before it has led to a dilatation of the stomach; in accordance with the nomenclature of Virchow it is better to say pyloric stenosis, with or without secondary dilatation; just as in the case of a cardiac valve lesion where we do not speak of a dilatation of the right heart, but designate the condition as a mitral regurgitation with consecutive dilatation and hypertrophy of the right ventricle. The gastric dilatation, therefore, presupposes a lesion of the pylorus.

There are still a number of authors who do not admit this dilatation as arising in every case from a stenosis; but claim that gastric dilatation may occur without pyloric stenosis, due merely to a muscular weakness, that is, the so-called "ectasie ex atonie." Among these exponents are, for instance, Stiller in Budapest, Ewald, Pariser, and to a certain extent, Rosenheim and Boas. On the other side are Schreiber, Ullmann, and particularly, Cohnheim. These men deny the possibility of the development of a chronic dilatation from a primary weakness of the gastric musculature without anatomical obstruction, or at most, only admit an acute dilatation follow-

ing a paralysis such as occurs in shock or after laparotomy. According to some authors, we still have two forms, namely, "Ectasie ex stenosi and ectasie ex atonie."

The origin and development of the stenotic form is well known, so that we can be very brief on this point. The most common cause is the ulcer pylori which has developed into a scar, hence the cicatricial pylorus stenosis; next come the tumors of the pylorus, benign and malignant; then perigastritis with formation of adhesions and bands between pylorus and the neighboring organs, such as liver, pancreas, gall-bladder, etc. Besides these, but less often, there is a compression of the pyloric end of the stomach by enlarged adjacent organs, giving dilatation. The same result is obtained by ulcer cicatrices, tumors and compression of the duodenum. Finally, a dilatation can arise from a spastic stenosis in the case of an active, not yet cicatrized pyloric ulcer, just as it may also occur in kinking of the stomach in gastropexia; it may occur also in gastritis gravis where the pyloric sphincter is hypertrophied. The stenosis following scars, neoplasms, adhesions or compression cannot be relieved by internal measures; whereas the spastic variety can be relieved with relative ease, at least as much as any other gastric ulcer.

In rare instances the pyloric stenosis is congenital, and leads in the very first weeks of life to marked dilatation. Only a successfully performed operation can here save the life of the child.

Before the pyloric stenosis has reached so high a grade that stagnation of food and dilatation of the stomach occur, a stage of hypersecretion is present, which demonstrates itself in a continual flow of gastric juice, the so-called "Gastrosuccorhea," or Reichmann's disease.

The affection passes through the following stages of development: 1, Ulcus pylori or compression, etc.; 2, Cicatrix; 3, Hypersecretion; 4, Gastrosuccorhea; 5, Stagnation; 6, Dilatation.

The dilatation can, if medical skill does not intervene, lead to tetany and exitus letalis. Ordinarily, rational treatment brings about a disappearance of the dilatation so that only the stenosis remains; the latter, however, can give rise to a future dilatation. The retrogression takes place thus: Dilatation, stagnation, gastrosuccorhea, hypersecretion, stenosis. In the case of spastic stenosis this also disappears, and the patient is completely cured, retaining only the predisposition for a recurrence of the trouble. In some cases, however, the pyloric orifice is so contracted by a scar that a knitting needle can barely be passed through. In such cases only an operation can bring relief. These forms can be recognized by the presence of oliguria, and the stagnation even of absolutely liquid food.

Now what is to be said of the so-called "ectasie ex atonie?" In order to answer this ques-

tion and at the same time avoid a misunderstanding, it is necessary to enter more fully upon the consideration of this idea.

We are justified in terming as "dilatation" only those cases where the stomach is enlarged and insufficient; that is, where the greater curvature extends below the umbilicus and where remains of food eaten days previously are found in the fasting stomach before breakfast. If the greater curvature merely lies low down, but the stomach contains no food rests early in the morning, then we term the condition gastrop-tosis. If, however, stagnation be present in the morning, but the greater curvature not displaced downward, then we call the trouble insufficiency.

For a "dilatation" both insufficiency and a downward displacement of the greater curvature are necessary factors. Most cases of insufficiency lead to a dilatation, except in those instances where the physician intervenes, or where strong adhesions retain the stomach in a high position, or finally where the patients at once vomit all the food which they ate. In the latter case the stomach cannot become distended because the necessary weight is absent.

That in benign dilatation sarcinæ and hyperchlorhydria develop, whereas in malignant pyloric stenosis lactic acid and Oppler-Boas bacilli are found, is a quite well recognized fact. From these chemical and microscopical findings we determine whether a dilatation is the result of a benign or malignant pyloric stenosis.

The exponents of the "atonic" dilatation, especially Stiller, define the disease entirely otherwise; they call those cases "dilatation" in which the greater curvature lies low in the abdomen, and in which early in the morning splashing sounds can be elicited in the epigastrium. They regard it as inconsequential as to whether stagnation exists or not; they say that dilatation comes first and then stagnation, whereas in the stenotic form the stagnation precedes the dilatation.

These authors thus have a totally different conception of dilatation; they call that dilatation which we call atony or gastrop-tosis. Their form of dilatation does not come within the scope of our consideration. We are endeavoring to find out whether a dilatation *with stagnation* can result from muscular weakness.

Until the present moment no clinical or anatomical evidence in favor of this view has been found. All cases of chronic dilatation which were examined post-mortem showed *without exception* an anatomical obstruction in the pyloric portion of the stomach or in the duodenum, be it a scar, carcinoma, adhesions, compressions or an active ulcer or erosions. Only in cases of acute dilatation following shock, trauma, laparotomy, intoxications or severe indigestion could a paralysis of the musculature be demonstrated, and an absence of an anatomical obstruction noted. These acute dilatations we will not discuss here.

At operations, one also constantly found, in so far as an exact exploration could be made, either scars or spasms of the pylorus. These facts are well brought out in the excellent work of Carle and Fontino.

Now the exponents of the *atonic* dilatation say that the primary factor is the enfeebled motility; then comes hypersecretion, this in turn causes pyloric spasm, and thus the dilatation is produced. Some indeed claim that there can be a direct transition of atony into dilatation.

For this reason Boas has termed atony an insufficiency of the first degree, and dilatation, insufficiency of the second degree. This designation conveys the idea that the conditions differ from one another merely in intensity and not in principle.

In the first proposition, that the atony causes hypersecretion and pyloric spasm, the authors indeed admit a mechanical obstruction, namely, the spasms, as the cause of the ectasie; this group of so-called atonic dilatations must therefore be eliminated, and must, owing to the spasm, be classed with the stenotic form. It is also considered by some as inconsequential and for our purpose even superfluous, to determine whether a pure hypersecretion can produce a pyloric spasm. This latter possibility is denied by many, it being assumed that the spasms can be caused only by an ulcer or erosions on the pylorus. In all these cases, therefore, the authors concede the existence of a mechanical obstruction at the pyloric end of the stomach.

The only remaining possibility is that due to constantly increasing weakness of the musculature, an ectasie develops out of the atony. The question now is, has the latter fact been observed, or is it even theoretically possible?

In the first place, no case of gradual transition of atony into ectasie has, as before stated, been observed. In the literature there are no facts supporting such a condition; the cases of Stiller cannot be considered because they are not dilatations in our sense of the word, but are only gastrop-tosis. What indeed is atony? It is nothing more than a gastric weakness in a co-existent general body weakness, for it is seen exclusively in enfeebled individuals, and never in fat, well-nourished persons. It never occurs primarily, but always as an accompanying symptom of a general muscular and nervous relaxation. Only when the whole body is strengthened does the gastric atony improve.

Atony is thus only a symptom of a constitutional disease, whereas the dilatation is a purely local lesion. Between these two conditions there is therefore a radical difference, and not one of degree. If the atony were a local affection, a primary muscular weakness of the stomach, it would of necessity by overloading that organ be transformed into a dilatation.

In view of this fact one could not then in atony apply a so-called forced-feeding cure for fear of causing a dilatation. But despite the

fact that hundreds and thousands of atonies have been treated with the forced-feeding cure, no dilatation has developed from the atony. On the contrary, the patients have been relieved of their atony as soon as the increased food ingestion improved their general condition. From this it follows: That the teaching that a primary muscular weakness causes the dilatation must be false; also that no "ectasie ex atonie" exists; and that the atony can only then develop into dilatation when a mechanical obstruction of some kind or other appears.

The question has not only a theoretical value, but also an eminently practical significance, in that we no longer fear giving a forced-feeding cure in atony; which we could not do if a dilatation were able to develop from the atony. You may, therefore, in undernourished individuals in whom epigastric succussion, together with a downward displaced greater curvature, but at the same time normal motility, are found, employ the well-known forced-feeding cure or Weir-Mitchell cure.

I will mention briefly the diagnosis of dilatation. The diagnosis itself is easy; but it is difficult in each case to determine the nature of the obstruction—whether benign or malignant, whether ulcer or adhesion, etc. We must do this in order properly to apply the therapy.

As before stated, a dilatation exists as soon as stagnation and gastroptosis are present; if only stagnation occurs, then we have merely an insufficiency, or rudimentary form of dilatation. In a benign form, hyperchlorhydria and sarcinae are found in the stagnant masses; this rule has one exception, as sarcinae are also seen in ulcer carcinomatosum of the pylorus, or in beginning carcinomata. In malignant pyloric stenosis, on the other hand, no hydrochloric acid nor sarcinae are found, but lactic acid is present, together with numerous bacilli; with one exception, lactic acid and bacilli are found in gastritis gravis, that is, a form of gastritis atrophicans in which an inflammatory hypertrophy of the antrum pyloricum occurs, and with it a stenosis of the orifice. This latter condition is most commonly found in alcoholics and is, however, very rare.

It is thus, as a rule, quite easy to distinguish a benign from a malignant dilatation, especially when one considers the fact that the latter form occurs later in life, and appears rather abruptly in a previously healthy individual.

How are the various forms of benign dilatation to be divided? Sometimes this is very easily done, at other times it is impossible; as a rule the classification is made as follows: In an ulcer with cicatrix the patients have had frequent gastric cramps for many years, often also hematemesis, melena or vomiting; the stagnation is relieved by liquid diet, but usually returns with the ingestion of hard food; that is to say the stenosis is already well advanced.

In dilatation following pyloric spasm, cramp-like pains in the epigastrium, so-called epigas-

tralgia, arise regularly several hours after the principal meals, and do not cease until the patient has vomited the food or gastric juice, or has taken some medicament. The stagnation in these cases can be relieved by one to four weeks' treatment. Then the continuous secretion of gastric juice ceases, and only an alimentary hypersecretion persists. The predisposition to recurrence, however, remains.

Dilatations caused by compression or torsion usually show no epigastralgia; they develop gradually, since the gastric musculature hypertrophies in proportion to the increase of the stenosis. In those cases of dilatation following perigastric adhesions, for example, after cholelithiasis, trauma, or ulcerations extending to the serosa, it is impossible to make a positive diagnosis. One can only suspect an etiology, when, for example, many gall-stone colics have occurred accompanied by icterus, etc.

You will see that it is often difficult to determine the exact causes of the affection. Fortunately this is not absolutely necessary for the therapy, for which I will not speak at present.

Gathering all the evidence, I arrive at the conclusion that atonic dilatation does not exist, but that all cases are caused by an obstruction at the pyloric orifice, and if the forced-feeding cure was applied instead of the starvation cure in the cases of the so-called atonic dilatation, more would be convinced that dilatation does not exist as the result of muscular weakness.

ADENOIDS: THE CAUSE OF CHILDREN'S DISEASE MOST FREQUENTLY OVERLOOKED.

BY JNO. A. DONOVAN, M.D.,
OF BUTTE, MONTANA.

THE difficulty of a specialist writing a paper on a subject in which he is much interested, feeling at the same time that the general practitioner will appreciate it in the same light, is felt by all. Fortunately, you who have given some attention to the subject of adenoids need but a suggestion, while I hope those who have lightly passed it over with the thought "It's something the laryngologists talk about" may become convinced the subject is worthy of a few minutes' consideration.

After thorough study and observation, I believe that, with possibly the single exception of diet, no one condition is responsible for so much or many derangements in childhood as adenoids. Notwithstanding the earnest appeals of its discoverer, Dr. Meyer, and others of our time, and their overwhelming demonstrations of the trouble in its wake, we have not and are not giving it the attention it demands.

This paper may appear to some as a gross exaggeration and the dream of the specialist who sees only these diseases, and so may it be. But, who is there who has carefully examined the throats of many of these children, whom I am about to describe, can say positively they are free from an excess of adenoid or lymphatic

tissue; who, after carefully operating on many and noting the results, is bold enough to assert that this is not the cause? Then, admitting the possibility of a doubt, let each contribute his mite toward putting our profession nearer being an exact science—its hoped-for goal. Until that day comes, none can afford not to look carefully for and eradicate every possible cause of physical and, I might add, mental suffering.

For a concise, convenient, thorough and rather complete treatise on this subject, "Medical Monograph Series No. IX, Adenoids, by Wyatt Wingrave¹ should be studied. From it I shall make several quotations without further credit.

Historical.—Meyer, of Copenhagen, first named adenoid vegetation and gave first definite clinical conclusions in 1868. To his memory was paid the rare honor, seldom afforded a physician, of having a monument erected in a public place in his own city. I quote the following from Sir Felix Sémon's address at the unveiling of the monument, October 25, 1898: "It is now just thirty years since he was one day consulted by a girl, aged twenty years, who suffered from deafness, whose voice was most peculiar, and the expression of whose face was almost idiotic. Treatment directed to the ears and to the throat failed, and it was not until the puzzled observer one day introduced his finger into the space between the nose and throat that an unexpected solution was met with. Instead of penetrating into an open cavity, the finger was arrested by a large, soft, easily bleeding mass, a condition the existence and nature of which in those days formed a terra incognita. Meyer succeeded in removing this mass by operation, with the result that the deafness was materially improved, the voice became natural, and the idiotic expression of the face disappeared. Gratified as this result was in itself, it was, however, only then that Meyer's real merit commenced. . . . It was at first not easy to convince the bulk of the medical profession, the parents of the mostly juvenile patients and the schoolmasters, that a discovery had been made which, like few others in medicine, was of the most practical importance concerning the development of a healthy mind in a healthy body of the rising generation, and it needed the irrefutable proof of the surprising improvement seen in the subjects of successful operations to make this conviction a universal one. But truth, though slowly, ever forces its onward way, and when Meyer three years ago closed his eyes, he had the satisfaction of knowing that the value of his discovery had at last been recognized. . . . In the last paper on the subject, which Meyer wrote a few months before his death, he showed that the facial expression of some Greek statues and busts which have come down to our times left no doubt that the originals had been sufferers from adenoid vegetations; medieval portraits of historical personages prove the same

fact. Any physician might have conceived the idea of investigating the subject as Meyer did in 1868, but it was left to him to do it, and having done so, to realize the importance of his discovery, whereby he became, without exaggeration, a true benefactor of the human race.

Anatomical.—The nasopharynx is situated behind the nasal cavities, behind and above the palate. Its function is purely respiratory; this should ever be borne in mind. In examination, remember that the atlas may be felt projecting on the posterior surface; the sphenoid and occipital may form a very prominent ridge superiorly dividing the roof into two deep pockets.

Distribution.—The pharyngeal tonsil is the first in order of an interrupted series of lymphoid structures extending through the upper part of the respiratory and the whole length of the digestive tracts in the following sequence: faucial tonsil, lingual tonsil, solitary and agminated glands of the large intestine.

Etiology.—This existing normally at birth need not be considered unless it fails to disappear or becomes hypertrophied or irritated. Remembering the function of the nasopharynx to be only respiratory, then the importance of any obstruction is evident. If this obstruction becomes manifest, we term the gland an adenoid. Wingrave places nasal obstruction early among the causes. I believe it to be a result. It is essentially a disease of childhood, a greater proportion existing between the age of three and fifteen years. He gives 8 cases in 4,000 under twelve months. With a much less total, I have seen more than this number during the first year and believe the proportion at an early age much greater than the large collective statistics show. Sex does not influence it. It occurs more frequently in certain families, indicating heredity as a marked factor. Measles, scarlatina, diphtheria, etc., in a great proportion of cases, seem to mark the beginning of adenoid symptoms. W. F. Chappell¹ says: "Whether as a sequel, or as a port of infection for the exanthemata, we do not know, but that we find an increase of lymphoid tissue after these diseases cannot be denied. More definite conclusions can be formed after it has been definitely proven that the exanthemata are of bacterial origin. We know that chronic hyperplasia of any lymphoid structure predisposes to the infection of tubercle bacilli, streptococci, diphtheria bacilli and pneumococci; then why should it not obtain as well in all diseases of bacterial nature, offering as they do such an easy entrance for infectious organisms?" The lack of proper use of the handkerchief by children is ascribed as an important cause. Among the causes of the acute inflammatory symptoms are sudden climatic changes, damp air, poor ventilation, irritating gases, poor nourishment and stomachic derangement.

¹ W. T. Keener Co., Chicago.

¹ Manhattan Eye, Ear and Throat Hospital Report, March, 1905.

Symptoms.—Dirty nose, snoring, mouth-breathing and vocal defects, especially if accompanied by earache or discharging ears, are pathognomonic. To the experienced person, the appearance of the face first attracts attention. One can pick out adenoid children in a crowd, and frequently find that several if not all belong to the same family. Though by no means infallible, the exceptions are not very common. The expression is chiefly marked by a large open mouth, with a general arrested development of the facial framework. The nose is depressed, the nasal apertures are small, vertical in position (snub nose) with more or less paralysis of the alæ. The cheeks are "flabby"; mouth widely open, "fishmouth," with a general "heavy" or stupid expression. The lower jaw is drooping; lips and buccal muscles are imperfectly used in swallowing and speaking, thick and everted. The eyes expressionless, often squint and may be subject to epiphora, while the forehead may be prominent and the maxillæ with their sinuses are imperfectly developed. There may be varying degrees of torticollis, reflex or due to direct pressure of enlarged cervical glands upon the spinal accessory nerve. The teeth are carious, crowded and prominent. There will generally be more or less nasal discharge with resulting eczema of the nostrils. The nose is stuffy and obstructed, with consequent mouth-breathing, snores at night, struggles during sleep, which may be relieved by turning on side; night terrors are common, as is spasmodic dyspnea, etc. The child has frequently if not constantly cold in the head, coughs at night (cough may be croupy or bronchial). Sore throat, thick, mushy voice, hard breathing when nursing or eating are common, the last so much so that infants frequently show a very strong indisposition to take nourishment. The digestive organs are indirectly affected. Vomiting, diarrhea, furred tongue, defective teeth, difficult deglutition, especially in nursing infants, grinding of the teeth, convulsive twitching of the extremities are signs often mistakenly attributed to worms.

Earache and discharging ears is one of the most common results, and adenoids should be looked for in every such case. Acute and inflammatory eye diseases, especially phlyctenular conjunctivitis and keratitis are frequent in this condition. The children become emaciated, fretful, restless, unable to study, with poor memory, followed by numerous reflex symptoms—dyspnea, asthma, abdominal cramps, convulsions, night cries, cough, torticollis, incontinence, chorea, squint, twitchings, etc. In this place, let me urge that all the symptoms or even any of them by no means are always the result of adenoids, yet, when a child has several or many of these symptoms, and adenoids are found and removed, the results are nothing short of marvelous. This fact can be testified to by many a parent who has traveled with the child for its health, which was only improved after either

returning home or elsewhere meeting with a physician who discovered the cause. To find all these in a given case is the exception; fortunately for the child, but a few are manifest in most cases.

Diagnosis.—Many of these children are entirely neglected, never seeing a physician till some accident brings them. This condition should be thoroughly understood by our school teachers, for next to eye strain, it is the cause of the inability of so many students to advance. A differential diagnosis must be made from lymphatism, syphilitic and gonorrheal rhinitis, congenital occlusion, high-arched palate, small or occluded nostril, unusually small postnasal space, anterior projection of the bodies of the cervical vertebræ, some malformation of the soft palate, hypertrophy of the tongue. There is frequently manifest a mucous coating; also, granular elevations in the upper part of the pharyngeal wall, and adenoids may be seen by elevating the palate and at the same time tipping the head well back.

The mirror in young children is almost useless. The finger is certainly of greatest value, yet adenoids, like tonsils, may be enormously enlarged during an acute attack, but when examined in the office afterward, may escape recognition. Again, I differ with the authorities who say this method is very easy and certain, for with a struggling child, a small nasopharynx, and especially with an examiner not constantly familiar with such work, a diagnosis is by no means certain in many cases. The appearance of blood after the examination is suggestive. Considering the symptoms, exclude other possible causes, make a presumptive diagnosis, confirm it with the curette and at the same time effect a complete and permanent cure without needless pain, worry or anxiety.

Treatment.—Teach the child the proper use of the handkerchief, and to breathe through the nose. Palliative treatment consists of proper cleansing with alkaline solutions and mild astringents. My personal method may be briefly given by illustrating cases. Last Sunday afternoon, with the kind assistance of Dr. C. L. Larson, among the 45 deaf children I was able to examine in the Montana School for Deaf and Blind, at least 9 had adenoids. A little girl showed no particular symptoms; a relative free breathing space; advised leaving her alone. A boy, fourteen years of age, with many of the symptoms I described, including eye disease; general condition at present not good; enlarged glands, etc.; large tonsils; I feared hemorrhage or severe reaction and prescribed iron and iodine until his general condition improves somewhat. Another girl with both adenoids and large tonsils, and unfortunately but naturally slowly failing mentally, said she was advised by her family physician to have nothing done. Six others were operated on, ages six to seventeen; used 10 per cent. cocaine in all; no difficulty with any, and

but two complained a little of severe pain. Of course, all felt it somewhat. In each case careful measurements were made with the finger; any anatomical abnormality noted, and the curette used accordingly.

For the same reasons stated in my paper on nasal surgery, before the American Academy of Ophthalmology and Oto-Laryngology.¹ I advise immediate operation, and disagree with those advocating long preparation.

My experience with chloroform has been so unsatisfactory, and with cocaine so very satisfactory, at present I cannot agree with the many who advise general anesthesia. I admit that many anesthetics may be less dangerous than chloroform, but agree with de Mendoza:² "No one should be exposed to the dangers of death for an operation which should not last more than fifteen seconds, and in which the pain is a negligible quantity. The dangers from ethyl bromide are as real as those from chloroform. Anesthesia is nothing else than a limited poisoning, the first step in a general intoxication; the mortal dose is far from the useful one, but frequently it may be near; occasionally the road is on the edge of a precipice." If one is determined to use an anesthetic it is a crime to make the family of the patient an innocent accomplice by assuring them that the anesthetic is not accompanied by any danger whatsoever.

Conclusions.—1. Adenoids may occur at any age.

2. In a child manifesting any of the symptoms enumerated, adenoids should be suspected.

3. In any child having repeated colds, running nose, ear, or bronchial symptoms, careful throat examination should be made.

4. In every case in which adenoids are suspected of producing trouble, they should be removed immediately if general condition does not contra-indicate.

5. A general anesthetic at any age is not only unnecessary but dangerous.

6. Adenoids may and usually do disappear in adult life, yet, the patient should not be obliged to suffer and wait.

MEDICAL PROGRESS.

MEDICINE.

Ocular Symptoms of Accessory Sinus Affections.

—While the average number of the profession, as W. C. POSEY (*Journal A. M. A.*, September 9) remarks, is conversant with the general symptomatology of sinus disease, there are yet many of the less striking symptoms with which they are less familiar. Many of these are among the earliest ones and are attributed to eyestrain and refraction advised. In some cases the use of atropine employed to put the ciliary muscle at rest dries up the secretion and actually effects a cure. This, however, does not always happen, and much damage and loss of time may follow the error. Among the less fre-

quent symptoms he includes implication of the optic nerve and disturbances of vision. The condition, he states, is to be studied by the usual methods with the ophthalmoscope, test cards, perimeter, etc. Orbital disease is usually secondary to sinus disease, and one of the earliest signs is a change in the contour of the orbital ring. The particular sinus involved cannot always be made out, but the character of the orbital displacement is often significant. Optic nerve involvement, circulatory disorders of the orbit and conjunctiva, etc., may also be of diagnostic value, but the symptoms may be obscured by the anatomic variations of the sinuses, which are not infrequent. Sinusitis is only rarely a direct cause of lacrimal disease, though it may more frequently produce it indirectly by way of the nasal mucosa. Edema of the lids is one of the most significant signs of accessory sinus disease, and may often first call attention to its existence. It is non-inflammatory, is usually most marked on the upper lid, and in the morning, disappearing during the day. A persistent blepharitis may accompany the chronic conjunctivitis of sinus disease, and may disappear only with the removal of its cause. The close anatomic association of eye muscles and nerves accounts for the occurrence of ocular paresis or paralysis from sinus disease. Paresis, indeed, may occur in very mild cases, and Posey is of the opinion that if many of the cases of palsy of extra-ocular muscles attributed to rheumatism were analyzed an affection of a sinus would be found to be the underlying cause in many instances. Conjunctivitis may be the result of the general mucous congestion, and occasionally there may be an implication of the cornea, either indirectly from the exposure incident to the exophthalmus, etc., or by implication of the fifth nerve. Pupillary changes may accompany the optic neuritis when it exists. Posey considers that intro-ocular affections, uveitis, etc., must be very rare, though some authorities hold that they are frequent. Refraction disorders and asthenopia occur from the pressure on the orbit and inflammatory interference with the musculature, etc. Headache and neuralgia are pretty constant attendants of sinusitis, and while not always characteristic, are often decidedly so. The special features are given in detail. Other symptoms of a general character, fever, evidences of cerebral congestion and irritation, neurasthenia, gastric disturbances and even marked mental symptoms may also be induced. Cerebral symptoms indicating involvement of the meninges or sometimes even brain abscess may occur.

The Principles of Life.—M. L. PRICE (*Journal A. M. A.*, September 9), after criticizing Metschnikoff's well-known theory of senility, finds only three theories that will properly account for the condition: First, that the failure of the cells is due to successive and repeated inflammations, causing the replacement of the proper cell substance by scar tissue incapable of assuming its functions. Second, that the failure of the cell is a nutritive one, the cell becoming unable, with the advance of time, to keep up the metabolic processes needed in its special functions. Third, that the cell failure is due to the loss of properties enabling it successfully to resist the constant activities of pathogenic organisms and toxins. There are objections to the first of these; senile changes occur evidently without reference to prior inflammatory conditions, and it does not satisfactorily account for the loss of the power of reproduction and regeneration. There is, however, a failure both

¹ Laryngoscope, December, 1904.

² Abstract, *MEDICAL NEWS*, April 14, 1905.

of nutrition and resistance in senility, and the author offers the theory that the cell is endowed very early in its existence with a specific substance, the presence of which is essential to its functions, that this substance becomes progressively exhausted during the life of the organism, and that it alone, of all the materials of the cell, is not renewed after a certain early stage of its existence. This hypothetical substance he calls bioplasmine, and he represents the probable constitution of its molecule by a graphic formula. He discusses at length the properties and action of this substance in growth, heredity, etc., and speculates on the possibility of its isolation and the possible practical results. The first advance to be made in prolonging life would, he thinks, be in stimulating the activities of the bioplasmine in giving off the substances necessary for metabolism when this can no longer be accomplished by the physiologic stimulus. It is not likely, he says, that the bioplasmine molecule is ever so much reduced during life that there are not a considerable amount of these substances in combination. It is to the physiologic chemist, he states, that we must look for the clearing up of the problem of the prolongation of life, and it is not too much to expect that our descendants of 1,000 or 5,000 years hence may realize or exceed the ages of the patriarchs of the Mosaic chronicles.

The Fat of Top Milks.—J. W. ENGLAND and C. H. LA WALL (*Journal A. M. A.*, September 23) have examined the certified milks sold in Philadelphia and find that quite a number of factors influence the fat percentage. The richer the upper layers of top milks in fat the poorer the lower layers. The differences in the fat percentages of top milks in pint and quart bottles respectively are marked, especially in the lower layers. The extreme range of variation between minimum and maximum was from 60 to 170 per cent., and the maximum variation of the whole milks examined was nearly 50 per cent. The quart bottles of the Philadelphia milks follow the Winters standard very closely for the upper one-half ounce, one ounce, two ounces and four ounces. Above that, the differences are wide. The pint bottles of certified milks follow Winters standard very closely for the first one and two ounces, but differ widely for the rest. The one-pint bottles should not be used for obtaining top milks for infant feeding, as the differences of fat percentage are too great. While the differences are not so great in the case of the quart bottles as to justify the disuse of the top milks, it should be remembered that in cow's milk, as in human milk, the ratio of fat to proteid is highest at birth and gradually decreases until the period of dentition is reached: for this reason the fat percentages of cow's milk are most variable. As is well known, the most uniform milk is that of a herd rather than that of a single cow. The same rule holds true as regards the other constituents of milk, though not to the same extent. The authors say: "Apparently the best results in top milk infant feeding are to be had by approximating percentages; that is, by having them reasonably accurate and then adjusting, if necessary, the relative proportions of top milk and diluents to suit the individuality of the child."

By Way of the Oyster.—At such time of year, when the magic "r" is lacking from the names of the months, a brief against the oyster stands a better chance of a dispassionate hearing than when the succulent shellfish reigns supreme as the precursor of

Epicurean and the sequel of Thespian delights. While deprecating the panic which was precipitated some years ago by the suggestion that the raw oyster was an important etiological factor in localized epidemics of typhoid fever, the judicial mind must admit a grave element of danger in this widely consumed article of diet. Any lingering doubt upon the subject should be set at rest by a study of the statistics presented in Caleb Allen Fuller's article in the report of the Commissioner of Fisheries for the year ending June 30, 1904. Mr. Fuller has collected a convincing list of epidemics following the consumption of shell-fish. Characteristic among them is that which occurred at Wesleyan University in October, 1894. On the twelfth of that month seven college fraternities had their initiation ceremonies and celebrated in the usual way with a supper. Eight days after several students were reported sick with a moderate degree of fever, and shortly after November 1, twenty-three cases of typhoid fever had developed. Investigation proved beyond a doubt that the water supply was above suspicion and that the sanitary condition of boarding and lodging houses was perfect. All the men affected were members of three fraternities which had obtained their oysters from a local dealer. One other fraternity had oysters from the same dealer, but these were eaten cooked, whereas the other three lots were served raw. Two of the remaining three fraternities did not have oysters, and the other one obtained its supply from a dealer in Hartford. Only one non-fraternity man contracted the disease, and investigation of his case only established the more firmly the responsibility of the local supply, for this man had eaten of the same lot of oysters at the dealer's shop. Inquiry brought out the fact that two of five men from Yale who had been guests at the exercises of the societies were seized with typhoid fever some time after their return to New Haven. Further investigation showed that the oysters had been stored at the mouth of the Quinnipiac River, 300 feet from the outlet of a small drain from a house in which two persons were sick with typhoid fever. Other epidemics leading to the same conclusions were reported from Portland, Me., in 1900, and from Atlantic City, N. J., in 1902, and a large series of them have occurred throughout the coast towns of Europe under similar circumstances. Thus far the argument is of the *post hoc ergo propter hoc* variety; nor is it removed from that category even by the investigations which show that the oysters came from waters subjected to sewage contamination. But Mr. Fuller, following the lead of Drs. Bulstrode and Klein, who conducted an exhaustive series of investigations for the English Government, has studied the bacteriology of oysters from polluted and non-polluted sources. His experiments have been more conclusive than those of the English investigators, who were unable to show a constant relation between sewage pollution of the water and the infection of the water with fecal bacteria. Space is lacking for even an approximate indication of the breadth of his experiments. Suffice it to say that they demonstrate undeniably the fact that the normal bacteriology of the oyster has no place for bacteria pathogenic to man, and such are never found in oysters taken from uncontaminated waters. On the other hand, oysters from polluted waters show the contaminating bacteria to such an extent that those uninfected constitute, as far as statistics are concerned, a merely negligible quantity. To be sure, it is quite possible to find a fair percentage of oysters whose powers of resistance have prevented the entrance of the bacteria into their organism; but

this fact is of small moment to the consumer, since the liquor within the shell shows practically the same analysis as the surrounding water from which it has been taken. If the oysters were always taken from their native beds directly to the consumer, the risk would be lessened, since the oysters themselves suffer in the contaminated waters, often dying in large quantities and failing to develop into a commercially desirable article. But perfectly healthy oysters from unpolluted sources are frequently infected through the so-called "fattening" which consists in depositing them in fresh water, which, near the large towns where the oyster is marketed, is often impregnated with sewage. Mr. Fuller's report demonstrates unmistakably that the presence of *Bacillus coli* in shell-fish is an indication of sewage pollution, and an interesting corollary of this demonstration is found in the fact that oysters taken at a distance of five or even seven miles from a point of sewage outlet contained excremental bacteria. Altogether, it would seem that the infection of this important food supply should be one of the points considered in the vexed problem of sewage disposal.

Bronze Diabetes.—Many different theories have been promulgated to explain the coincidence of the three conditions: general hemosiderosis, hypertrophic cirrhosis of the liver and diabetes, commonly known as bronze diabetes. O. HESS and E. ZURHELLE (*Zeitsch. f. klin. Med.*, Vol. 57, Nos. 3 and 4) have carefully studied two cases and are of the opinion that the condition is a general cellular dystrophy leading (1) to the appearance of two abnormalities: A fixation within the tissues of the blood coloring matter resulting from the increased breaking down of red cells and an increase of the connective tissue, particularly in the liver; (2) a lowering of the normal property of oxidizing carbohydrates.

Positive Venous Pulse in Anemia.—Occasionally, a distinct positive venous pulse may be observed in patients where it is absolutely certain that an endocarditis is not present. W. v. LEUBE (*Zeitsch. f. klin. Med.*, Vol. 57, Nos. 3 and 4) draws attention to the fact that this phenomenon is not an uncommon symptom of anemia and is due to a relative, muscular insufficiency of the tricuspid orifice. The cause therefore is the same as that of the mitral insufficiency so common in chlorosis. In order to make sure of the functional character of the condition, it is important to bear in mind that a relative tricuspid insufficiency in anemia develops at the same time as the mitral insufficiency, while in endocarditis the tricuspid lesion usually develops long after the mitral. Besides, disturbances of compensation are, as a rule, absent in anemia. In a few cases of anemia, a positive venous pulse was observed without symptoms of tricuspid insufficiency; it is probable, however, that here the insufficiency was latent. In certain instances the pulse was not very evident at first, but was rendered so by compression of the liver or the inferior vena cava. In all cases the symptom disappeared as the patients improved.

Polycythemia with Splenic Tumor.—From a study of the cases described in literature and several which he himself has observed, P. RECKZEH (*Zeitsch. f. klin. Med.*, Vol. 57, Nos. 3 and 4) concludes that polycythemia with splenic tumor is a special disease which appears during the middle periods of life. Jews seem to be more predisposed than gentiles, and the first symptoms are indefinite (headache, vertigo, general weakness and gastro-intestinal disturbances). When the disease is well developed, the patients

present a marked cyanosis of all the visible mucous membranes and the skin with dilatation of the veins and often hemorrhages. The spleen is usually very hard and may extend down to the umbilicus or even the crest of the ilium. The most characteristic blood finding is an increase of the hemoglobin, sometimes to 150 per cent., and a very high number of red cells. As high as 12,000,000 has been estimated for a cubic millimeter. The white cells may or may not be increased, and normal percentages for the different forms are generally obtained. The specific gravity of the blood and the amount of albumin present are usually above normal. In a few cases that came to autopsy, a cheesy tuberculosis of the spleen was found, but this is not constant, and splenic tuberculosis may also exist without giving rise to this disease. The part which the bone-marrow plays is as yet undecided. In one of the author's cases the polycythemia affected only the upper part of the body; here a malignant tumor of the thymus and the lung was compressing the upper vena cava. The great importance of stasis is also evident from several animal experiments: When the upper vena cava of rabbits was stenosed by means of a ligature, an increase in the number of red cells in the circulating blood was almost always obtained. The course of the disease is usually very chronic, and the prognosis is generally bad. Quinine, arsenic and regulation of the diet have been recommended. Some clinicians have resorted to venesection, but the benefit derived from this was only temporary. Splenectomy may be indicated for those cases where a tuberculosis of the spleen is present, yet it will only rarely be possible to diagnose this condition during life, and the hemorrhagic diathesis of these patients will make an operation of such severity very difficult.

SURGERY.

Acute Tetanus Treated with Intracerebral Injections.—Every case reported, which bears upon this most important subject, is very welcome. K. S. STORRS (*Lancet*, September 23, 1905) gives the detailed history of a case of tetanus occurring in a man thirty years of age, treated by early intracranial injection. He notes particularly that the case was acute, the first symptoms developing ninety hours after the receipt of the injury. The symptoms, which manifested themselves before the spasms commenced, were further noteworthy. The author considers that the early resort to serum treatment saved the patient, and relates that in one of his previous cases, which had been treated unsuccessfully with intracerebral injections, they had not been used until the spasms were well established. No less than four injections of the antitoxin were made into the infected arm, care being taken that the nerve be intimately surrounded with the antitoxin. This, in the author's opinion, was a direct and rapid means of bringing the anti-bodies in opposition to the toxins, because the latter had been proven to travel centrally along the course of the nerves.

Wiring the Patella.—This subject, though old, is by no means as yet laid on the shelf. C. M. MOULLIN (*Lancet*, September 23, 1905) reports the history of forty consecutive cases which have been under his care during the last eleven years. During the last eight years, having become convinced that every case, irrespective of the age of the patient, should be wired, all were subjected to operation. In the first twenty-eight cases all the methods of subcutaneous wiring, and all with the exception of Baker's,

were found wanting. This last operation, which consists of passing a wire vertically around both fragments through the patella ligament below and the tendon or the quadriceps above, the ends being twisted together on the cutaneous surface, the author had practised four or five years ago. The results appeared to be good until they were scrutinized with the X-ray. This method of examination showed that union was not osseous. The fragments were tilted, and in every case not closely enough apposed to admit of more than cartilaginous union. As the wire was tightened, the tilting became greater. The last twelve cases had been operated upon by the open method, with an enormous saving of time and inconvenience. Operation was performed on the third or fourth day. A single stout wire was passed through and the ends twisted until the fragments were in exact apposition. No antiseptic whatsoever was allowed to touch the interior of the joint. The fascia on the cutaneous surface of the patella was carefully united as was also the lateral aponeurosis. On the third or fourth day active motion should be begun.

The Bartlett (Boston) Machine for the Reduction of Congenital Dislocations at the Hip.—J. RIDLON (*Chic. Med. Rec.*, September 15, 1905) concludes, from an extended use of the Bartlett machine, that its use does make the reduction easier for a strong man and possibly for any man. He believes it does greatly diminish the risk of fracture of the neck or shaft of the femur. It diminishes the risk of nerve injury and paralysis, and of rupture of the femoral vessels and gangrene, provided only suitable cases for operation are selected. Otherwise it adds to the risk. The machine places an enormous force in the hands of the operator, and if he chances to be inexperienced or foolhardy, it does not diminish the risk to the patient. In the hands of a careful and skilled operator it does diminish the risk very materially.

The Law of Consent in Regard to Operations.—Recent cases in court involving the question of consent to an operation have attracted considerable attention, and have been the source of discussions in the lay as well as the medical press, showing a danger, too little realized, to which the physician is constantly subjected. A. N. TAYLOR (*St. Louis Med. Rev.*, August 5, 1905) reviews this subject carefully and makes the following statements: The physician is brought to the conclusion that he must in all cases either keep within the strict scope of the authority expressly given to him, or must surround himself with such safeguards that he can show to the court and jury, by the testimony of thoroughly reliable witnesses, that he was employed to perform such operation as might be found necessary or desirable to be performed at the time of operating, and that the operation actually performed was so necessary or desirable to be performed at that time. The question from whom consent must be obtained is one upon which there is some confusion, as indicated by the decisions of the courts. It is laid down as a general rule that the consent of the husband must be obtained before an operation is performed upon the wife. Such consent is, however, usually implied where the husband places the wife under the surgeon's care, and especially where he understands the character of the operation to be performed. At times the court takes the position that consent of the wife is all that is necessary; that the positive prohibition of the husband would not

legally hold the physician from operating, if the wife requested the operation to be performed. It would not be wise, however, for a surgeon to operate in the face of such prohibition, for by so doing he would surely invite litigation. In case operations are to be performed upon children or others incapable from mental weakness of understanding the import of the proposed operations, then consent should be obtained from the parents or other persons in "loco parentis," or from the relations or those legally responsible for the care and protection of the person of the incompetent. Absence of consent may be made the gist of an action, not only in cases of operation, but wherever professional services are forced upon a protesting patient. Consent to perform a post mortem must also be had, except when performed in fulfilment of a requirement of the law.

An Attempt to Utilize the Electric Conductivity of the Urine for Clinical Purposes.—To determine whether, if in a given case, one kidney should be removed, the remaining one would be capable of attending to the eliminating process alone, G. KOLISHER and L. E. SMITH (*Chic. Med. Rec.*, September 15, 1905) have performed a number of experiments on the electric conductivity of the kidneys and have arrived at the following conclusions: If this method should prove to be true it would offer the following advantages: (1) It makes the examiner independent of any general normal standard for the molecular and osmotic concentration of the urine. (2) It is unnecessary to put the individual for several days under a certain uniform diet previous to the testing of the kidneys. (3) The test for electric conductivity requires only 2 c.c. of urine. (4) This test does not require a comparative testing of the molecular and osmotic concentration of the blood. Doing away with the disagreeable feature of bleeding the patient. (5) This test seems to be a true functional one, inasmuch as the simple adding of the stain to the urine does not show the same changes of conductivity as produced by bringing the stain into the circulation. (6) There seems to be a fair chance that it will be possible to determine, previous to administering general anesthesia, whether chloroform or ether will produce an undesirable reaction of the kidneys in giving such an anesthetic. (7) In cases of renal pyuria it seems to be possible to determine whether the inflammation is entirely confined to the pelvis of the kidney or whether it involves also the secreting parenchyma.

Enlargements of the Testis and Epididymis.—D. N. EISENDRATH (*Chic. Med. Rec.*, September 15, 1905) classifies the enlargements of the testis and epididymis under the following heads: (A) Acute. (1) Gonorrhea almost invariably involves the epididymis, seldom the body of the testis, or orchis proper. (2) Trauma almost always involves the body of the testis proper and but seldom the epididymis. (3) Epidemic parotitis or mumps, as a rule, affects only the orchis, or body of the testis proper. (4) Cystitis of non-gonorrheal origin is a frequent secondary complication, as is also inflammatory enlargement of the epididymis. (B) Chronic. (1) Tuberculosis is the most frequent cause of chronic enlargement, and, as a rule, first involves the epididymis, especially the tail of this portion of the organ, and later involves the body of the testis proper. It gives rise to a peculiar, nodular, very firm condition of the epididymis, feeling like a series of beads, and often extending in a similar manner up the vas defe-

rens. (2) Syphilis in the majority of cases involves the body of the testis proper, and but rarely the epididymis. There are, however, exceptions to this, in which tertiary syphilis involves the epididymis, as well as the body of the testis. (3) Tumors or neoplasms of the testis may be either benign or malignant; the benign belong to the class of adenomas, or chondromas, the malignant most frequently to the class of sarcomas.

X-Ray Diagnosis of Renal Calculus.—The object of this method is to obtain a photographic negative of the kidney region, with a view to seeing whether or not there is evidence of the presence of a stone. MORTON SMART (*Brit. Med. Jour.*, September 16, 1905) thinks the most important factors in determining this point are, the size and composition of the stone, the subject under examination, and the condition of the kidney. A small stone offers less resistance to the rays than a large one; therefore the shadow may be so slight and so small as to be easily overlooked. Pure uric acid calculi offer very little obstruction to the rays, and therefore are the most difficult to detect, but fortunately such stones are rare. Usually uric acid stones have a sufficient coating of oxalate or phosphate of calcium to throw a shadow. The oxalate of calcium stones throws the densest shadow, and pure phosphatic calculi are difficult to see, whereas the urates occupy an intermediary position. The size of the subject is to be more particularly regarded in connection with adults than with children, on account of the greater resistance of the parts in adults. The ratio of opacities between body plus stone and body minus stone approaches more nearly to unity the greater the thickness of tissues through which the rays have to pass. Thus the thinner the patient the more sharply defined will be the negative obtained. The condition of the kidney itself enters largely into the definition of the shadow. Calculi may cause more or less induration of the kidney tissue, which tends to increase the opacity to the rays, and may obscure the stone entirely. Again, the stone may be completely obscured by the dense shadow of surrounding pus. Another point to be remembered is that the nearer the object is to the plate the greater will be the contrast in the negative. It is advised that a second negative be made under as nearly the same conditions as possible after an interval of about three days. Stereoscopic photography in connection with radiography is considered well worth while.

Surgery of the Stomach.—BEVAN (*Am. Med.*, September 30, 1905) deprecates unnecessary operations, due to too great enthusiasm of qualified operators, and the undertaking of this class of work by men who are not fitted. He then discusses surgical treatment of gastric carcinoma, and of gastric ulcer, complications and sequels. He urges for carcinoma radical removal or non-interference, and is not in favor of the palliative measure of gastro-enterostomy. In technic, he prefers the suture to the use of either Murphy's button or the McGraw ligature. Ulcer is the province of the surgeon only after intelligent medical treatment fails. The complications and sequels of stomach ulcer, which demand surgical treatment, without question are perforation, obstruction of the pylorus, hour-glass contraction of the stomach, and such secondary conditions as perigastric adhesions and abscess, subphrenic abscess, etc. One of the sequels which must be considered is that of a carcinoma developing in the ulcer. There can be but little doubt but that this does occur very fre-

quently. Pyloric obstruction and dilation of the stomach furnish by all odds the most satisfactory groups, as far as the results from surgical treatment are concerned; these cases should practically all be submitted to surgical operation with marked advantage to the patient.

Congenital Umbilical Hernia.—CHARLES GREENE CUMSTON divides congenital umbilical hernia (*Med. Rec.*, September 23, 1905, into embryonal hernia and fetal hernia. In embryonal umbilical hernia three varieties may be distinguished. The first may be termed umbilical eventration and is characterized either by an arrest in development of the abdominal walls or by a defect in their union. The second is the diverticular umbilical hernia due to the persistency of the omphalomesenteric duct. The third may be termed hernia of the vitellin loop. Fetal hernia develops after the formation of the umbilicus. This is a true hernia, having a sac lined with peritoneum. Two membranes may be distinguished over the portion of the dilated cord. The external integument is formed by the dilated umbilical cord and is represented by the amniotic membrane. The internal lining represents the sac. Generally the two umbilical arteries are situated outwardly and below, while the vein is usually found above. The insertion of the cord to the tumor is usually at the side, most often the left. In cases of irreducible hernia the insertion preferably takes place at the apex. Frequently congenital umbilical hernia is accompanied with other congenital malformations. Also malposition of the viscera is common, as is hypertrophy. The mesentery may possess a greater length than normally. Malformation of the genital organs are frequent, consisting principally of a double uterus or vagina, epispadias, a bifid penis or clitoris, accompanied by pubic fissure and exstrophy of the bladder. Malformation of the intestines, such as absence of the anus or rectum, stricture or occlusion of some portion of the canal are common. Congenital umbilical hernia is relatively rare, occurring about once in from two to five thousand births. It is about twice as frequent in males as in females. Children afflicted with very large eventrations are usually born dead at or before term. Anemia is believed to be the cause, and quite frequently the anemia is due to the absence or slight development of one of the umbilical arteries. The formation of embryonal hernia is due to the fact that the borders of the somatopleure do not reach the median line on account of arrested development, the thoraco-abdominal cavity does not close in front, and the viscera, which should fill it, are consequently placed outside the body. This arrested development gives rise to an excessive shortness of the umbilical cord. Another cause of embryonal hernia is a defective regression of the omphalomesenteric duct. Instead of thinning out and finally breaking, the duct when thick retains the intestine outside of the umbilicus beyond the normal time, and an umbilical hernia forms. Fetal hernia is produced by the same mechanism that arises in umbilical hernia of children and adults. The diagnosis is not difficult, but a sufficient number of fatal mistakes have occurred from the non-recognition of obscure herniæ to suggest the advisability of caution. The prognosis varies according to the size and variety, being more grave in the larger herniæ and the embryonic variety. A number of operative methods are described, and it is advised that a selection of the various technics be made according to the needs of the individual case. Opera-

tion should be resorted to as soon as possible after birth.

Surgical Treatment of Strabismus.—**SYDNEY STEPHENSON** discusses the topic of tendon lengthening (*Lancet*, September 23, 1905) as a cure for squint. This procedure is more exact than simple tenotomy. The lengthening of the tendon should be directly proportionate to the linear measurement of the squint. The two most practical ways of effecting this are: (1) A long oblique incision is made with scissors, commencing near the lower border of the scleral insertion and terminating at the upper border of the muscle, some distance from its tendinous attachment to the eyeball. The two ends of the tendon are then united by a couple of points of interrupted suture. (2) The lower half of the tendon is cut through some little distance from the scleral insertion, and the incision is carried along the center of the tendon, midway between its upper and lower border, finally to be brought out at a right angle to its former course. The free ends left by this step-like incision are united by sutures. Tendon lengthening may or may not be combined with tenectomy and advancement of the antagonistic muscle. As a rough rule, whenever the outward excursion of a squinting eye is found to be reduced, or when there is a high degree of amblyopia in the misdirected eye, the combined operation should be performed. A squint of over 15 degrees angular measurement furnishes another indication. It is more satisfactory to undertake these operations under local anesthesia.

NEUROLOGY AND PSYCHIATRY.

Three Cases of Tumor of the Spinal Cord Operated on with Good Results.—**J. COLLINS WARREN** (*Am. Med.*, Aug. 26, 1905) reports two cases of localized tumors of the spinal cord in which removal completely relieved the symptoms, and a third case in which operation was only palliated but was followed by marked improvement. In Case I, a woman of fifty years had complained for fifteen months of increasing attacks of pain widely distributed over the left side and upper abdomen. For six months before the operation she had had increasing difficulty with the movements of the left foot, impairment of sensation on that side, incontinence, and exaggeration of the deep reflexes. Laminectomy was performed and a fibroma removed from the pia the size of an olive at the level of the ninth dorsal vertebra. Recovery was complete but slow, some symptoms persisting for six years, but she has been practically well for one year. In Case II, a woman of twenty-seven years had suffered from pain in the lower left side for two years. For six months before operation she had had some impairment of motion in the left foot, and for a few days before seeking advice had been unable to walk. There was loss of sensation over both legs, paralysis and marked increase of the reflexes. At operation a tumor three-fourths of an inch in diameter was found at the level of the eighth dorsal vertebra, and was removed, proving to be a psammoma. Recovery was rapid and the patient was well six months after operation. In Case III, a man forty-nine years, had shown symptoms of disease of the cord for twenty-five years, and for sixteen years had been paralyzed below the waist as regards motion, sensation and the control of the sphincters. Fourteen years previously laminectomy had been done with some relief. The second operation, in January, 1898, was done on account of symptoms of rapidly progressive general paralysis. Fragments of an in-

tramedullary tumor (endothelioma) were removed and the canal drained for two weeks. Improvement was rapid, and for the past two years the patient has been able to work.

The Normal Malay and the Criminal Responsibility of Insane Malays.—**Major CHAS. E. WOODRUFF** (*Am. Med.*, Aug. 5, 1905) says the Malay is found to resemble some of the North American Indians, and all the cruelty so well known in our dealings with Indians has been duplicated in the Philippine wars. The intelligence of the Malay is also quite limited, and their brains are much smaller than those of Northern Europeans. As a consequence, the Malay is like a cruel child, delighting in the sufferings of others, and is naturally bloodthirsty. An epileptic murderer is described, whose sanity was questioned by reason of the cold-blooded manner of the crime, but comparing the deed with the actions of normal Malays, the conclusion was inevitable that there was no evidence of insanity whatever. Incidentally, it is shown that the ordinary means of eliciting testimony under oath in our courts do not succeed with Malays, who have no conception of the necessity of telling the truth. Indeed, false swearing is a fine art whenever it is to the interest of the witness to conceal the truth. The jury system cannot be used because of the false conclusions to which the Malay arrives even should he have facts on which to reason. It is shown that a mistake has been made by providing no means for the trial of white men by white judges, as experience in other tropical countries has proved it to be unsafe to trust a European to native judges. Though the Malay cannot be trusted with political power, he must be compelled to obey civilized law and cease his savagery, because life and property must be made safe in every part of the world where white man's needs take him. The Americans have already made great progress in the Philippines in restoring order, and there should be no unjust or ignorant criticism nor any clamor to give the Malay a freedom he cannot sustain, nor a part in a government he cannot understand. He is to be helped and not abandoned, as was the negro.

Tetanus.—**J. M. ANDERS** and **A. C. MORGAN** (*Journal A. M. A.*, July 29) give a preliminary report of their statistical study of 1,201 cases of tetanus, collected from the literature and by direct correspondence, with special reference to the incidence of the disease in the United States. They find convincing proof that tetanus is invariably the result of the introduction of the germ, and that the so-called rheumatic or idiopathic tetanus does not exist. They also find that it is endemic in all large centers of population, that in some localities where it was formerly common, notably in Long Island, it has become rare, and that occasional small epidemics, traceable to a definite source, occur in limited localities, as, for instance, in hospitals, etc. It appears also that tetanus is more prevalent in the hotter part of the year, that males are more subject to it than females, and that it is less frequent in advanced age. The robust are more susceptible than the weak and the nervous than the lymphatic. There is much evidence that the disease is transmissible and may give rise to epidemics. The germ, Nicolaier's bacillus, is rarely introduced by the alimentary tract, but usually through open wounds, all parts of the body being very susceptible. A number of interesting clinical features observed in the cases collected are related, and it was noticed that the characteristic symptoms, especially trismus, were generally present. The diagnostic importance of the tonic contractions as opposed to the intermittent ones in certain other conditions that simulate tetanus, such as strychnia

poisoning, is emphasized. The authors found that their studies supported the earlier ones as regards the mortality, which decreases gradually after the tenth day and rapidly after the fifteenth. The study showed clearly the value of immediate radical local treatment, and that the most important thing is to open the wound freely in all directions under general anesthesia. Many patients were more or less benefited by the local carbolic acid treatment, and some observers report good results from the local use of ice or freezing mixtures or treatment in a cold room. For palliative treatment, chloral and the bromids appear to have been most extensively used. Calabar bean has been much employed, and also morphin, which should be used with caution on account of its inhibitory action on the respiratory centers. There is no question as to the value of antitoxin as a prophylactic; the testimony is uniformly in its favor. It should be used in any case in which there is suspicion of tetanus infection. In a well-developed case of the disease it has no appreciable beneficial effect, neither reducing the mortality nor hastening recovery.

The Motor Function of the Optic Thalamus.—An investigation of the muscular rigidity that frequently occurs as the result of lesions of the brain, particularly of the base, was made by F. H. THIELE (*Journal of Physiol.*, July 13, 1905). He finds that the optic thalamus contains in its posterior part on each side a center which controls the co-ordinated movements of walking. It is possible that some of this center extends to the corpora quadrigemina. The path by which control is effected appears to be the thalamo-rubro-spinal. The function of this tract is quite independent of that of the pyramidal tracts, since the center and tracts cause the same movements when the pyramidal fibers are completely degenerated in one or both sides. The optic thalamus exerts an inhibitory control over the opposite anterior corneal cells. The path along which this control is exerted decussates high up in the mesencephalon, and is probably along the thalamo-rubro-spinal tract. The optic thalamus does not appear to exercise any marked continuous control over the opposite cerebellar hemisphere by way of the thalamo-pontine, ponto-cerebellar fibers. The cerebellum does not appear to exert a continuous controlling function on the opposite optic thalamus by way of the superior peduncle, and results so interpreted may be really due to injury of the deeper mesencephalic spinal tract. The cerebellar cortical cells appear to exert an inhibitory action over Deiter's nucleus on both sides, but the effect is most marked homolaterally. Deiter's nucleus appears to exercise a continuous adjuvant action on the homolateral cornual cells along the Deiter spinal tract. This action is normally kept in check by the cerebellar cortical cells, since removal or depression of the function of these cells causes rigidity to occur. Stimulation of these cells causes the relaxation of pre-existing rigidity. The cerebellum through its peduncles governs the skeletal muscles, and is capable of producing movements. The control affects both sides of the body, but the hemolateral control is the most important. The muscles especially affected are those of the trunk and girdles. For the maintenance of the tonus of the muscles the reflex arc is necessary. The ascending spinal tracts do not appear to be necessary. From these results it is again proved that movements of great complexity, such as those of progression, can be carried out in the absence of the cerebral cortex altogether, and that this mechanism exists in the optic thalamus at its posterior part. The muscular mechanisms thus centered together are of wide spatial distribution and employ the limbs of both sides and the trunk, thus

differing from the highly specialized cerebral cortical mechanisms which employ much more limited groups of muscles. The broad structural linkage of the cerebellum with the thalamus, according to these experiments, appears to function in keeping these two important structures in co-ordination.

The Treatment of Tabes by Exercise.—That great care must be exercised in applying this measure to the treatment of tabes, is the statement made by H. S. FRENKEL (*Berl. klin. Woch.*, June 5, 1905), who also claims that more harm than good will result from its improper application. The mistake is often made of confusing simple muscular exercise with the practice of movements of coordination, so that in many cases the slight power which the patient possesses to coordinate his movements is often entirely lost. This form of treatment is directed against one symptom of tabes—the disturbance of coordination, and all the actions of the latter must be learned over again, and if this power has been lost, every muscular act must be learned likewise, as would be done in a child. The steps associated with each movement must be separately rehearsed until the ataxia is sufficiently improved to permit the entire movement to be attempted. As the ataxia is due to deficient sensibility rather than to loss of muscular power, it means that those centers which preside over a coordinated action which he has succeeded in learning have become educated to get along with a subnormal degree of sensibility. The sense of fatigue in tabetics is diminished, and therefore it is well to restrict their exercises to sessions of not more than five to fifteen minutes, twice daily. As the pulse-rate also rises after each exercise, it is well to await until it goes back to the normal before attempting another movement. The prognosis varies with the length of time the treatment has been kept up as much as with the severity of the disease. An improvement probably always takes place, and in some cases where the ability to stand or walk had been entirely lost, the author found it necessary to keep up the treatment for six and even twelve months. Conditions which exert an unfavorable influence on the prognosis are long attacks of pain, stomach and intestinal crises, rapid heart action, a marked degree of hypotonia, with extensive distention of the joint capsules.

PEDIATRICS.

Summer Diarrhea.—J. C. COOK (*Journal A. M. A.*, August 26) reports the results of bacteriologic and blood examinations in fifteen infants suffering apparently from summer diarrhea during the months of July and August, 1904. In eleven non-fatal cases, averaging nine and one-third months, in which the children had been carelessly fed by poorly nourished and ignorant mothers, the most striking bacteriologic findings were the frequency of the pneumococcus, this micro-organism being found in seven cases each of examinations of the stools and the throat. The colon bacillus was found in the stools in seven and in the throat in six cases. The bowel movements were not excessively frequent, averaging four daily in these milder cases. In one of the fatal cases, well-marked bronchopneumonia existed and the pneumococcus was present in every organ examined, as well as in the blood and stools. The same complication was present in another of the four fatal cases and the pneumococcus was found in the stools as well as in the lungs. In another fatal case there was found a red pigmented bacillus of the colon group staining the stools blood red and causing the attending nurse to

report hemorrhage, though microscopic examination revealed no evidence of it. Cook remarks that in some cases of infantile diarrhea a septic condition is probably set up by the entrance into the system, through the bowel lesions, of well-known pathogenic germs like the pneumococcus, and that this specific intoxication may be masked by the symptom of the milder infection.

Nocturnal Movements of the Head in Children.—This condition which is also known as *jactatio capitis nocturna*, is described by J. ZAPPERT (*Jahrb. f. Kinderheilk.*, July 1, 1905). It is found in young children and consists of rhythmic vigorous motion of the head, occurring during sleep, persisting, with short pauses, throughout the entire night, or a large part of it, returning nightly, unchanged, for many years. A series of six cases is reported by the author who finds in them the following common characteristics: In most of the cases the trouble starts during the third year, and is regularly repeated every night. In the morning the child is ignorant of the movements of its head during the preceding night. The movements are as regular as a clock and consist of a vigorous shaking of the head upon the pillow. The favorite attitude of the child during sleep favors the motions. They are in some cases accompanied by *pavor nocturnus*. It is instructive to note the differences between nocturnal shaking of the head and other forms of motion of this part of the body. From tic it is distinguished by the fact that the latter is developed out of conscious movements, and even in the latter stages consciousness and the will play a part, and that sleep and tic are incompatible. *Spasmus nutans* which occurs in young infants is usually associated with rickets, never exists beyond the fourth year, and ceases during sleep. Moreover, hysteria must be ruled out, for this always accompanies the state of waking. From stereotypic movements, including habit spasm, the nocturnal movement must be distinguished; the former, as defined by the Frenchman, Cahen, are motions belonging to the somatic or vegetative life, which are coordinate, have no convulsive character, but rather give the impression of purposeful practised movements, occurring over a long period, at first conscious and voluntary, and later automatic and involuntary. The stereotypic movements have been studied mainly in the insane, and there are many types of them, of which *katatonia* is one. The nocturnal motion of the head may be classed among the habit spasms of children, resembling the latter in the similarity of repetition, and the persistence of duration. It is quite possible that in the genesis of the nocturnal movement, this was an accompaniment of going to sleep, similar to the acts of sucking indulged in by many infants on going to sleep, and which are continued during the latter. In differential diagnosis must be excluded the gnashing of teeth, the sudden pulling together of the body, the throwing about, the spasmodic swallowing, nocturnal epilepsy, *pavor nocturnus* and *somnambulism*. In all of these are absent the regular nightly return of the movements, the automaticity and the long duration for years, which are present in the case of the nocturnal shaking of the head.

Measles Following Scarlatina.—Measles may show itself in any stage of scarlatina, according to H. RISEL (*Jahrb. f. Kinderheilk.*, July 1, 1905). In measles following scarlet fever the exanthem has a marked tendency to be atypical. The fever-cure of the secondary measles is not influenced by the preceding scarlatina, and this is true also of the other clinical symptoms, complications and sequelæ. If the defervescence of the scarlatina is coincident with the incubation period of measles,

the former is prolonged. Measles following scarlatina forms a very serious complication, the mortality being 20 per cent.

PATHOLOGY AND BACTERIOLOGY.

Bacteremia in Pulmonary Tuberculosis.—It is commonly supposed that the hectic fever, so characteristic for the later stages of tuberculosis, is due to an invasion of the blood with pyogenic germs, such as the staphylococcus and the streptococcus. Indeed, many reports on blood cultures are to be found in literature which claim positive findings. G. JOCHMANN (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 5 and 6) has examined the blood of forty cases, but has never been able to grow bacteria of any kind, even where the blood was taken a few hours before death. A number of examinations were also made after death, but in seven cases the heart blood was sterile and in only one, streptococci were obtained. The inference therefore can only be that bacteremia in pulmonary tuberculosis is an exceptional condition, and that the fever is in the great majority of instances due to absorption of toxins.

Bacteria in the Small Intestines.—While the large intestines normally contain a large number of bacteria of all kinds, it is quite exceptional to find the small intestines otherwise than sterile. Thus D. ROLLY and G. LIEBERMEISTER (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 5 and 6) found only a very small number of germs in the empty small intestines of rabbits. If bacteria are purposely introduced, they will soon be destroyed or carried away by means of peristalsis. The influence of the bile, pancreatic or intestinal juice is only very slight, since these fluids combined possess only a very feeble bactericidal action. The bile acids are also inactive since they very soon unite with the alkali present in the upper parts of the intestines. It seems that the normal intestinal walls are the chief factor which inhibits bacterial growth, while the constant change in reaction, which goes on from the pylorus to Bauhin's valve, probably also plays a prominent part. If the intestinal walls are injured in any way, as by strangulation, bacterial growth is no longer checked.

Influence of Roentgen Rays, etc., on the Blood.—The Roentgen rays seem to have a specific action upon the blood, for the leucocytes rapidly disappear after exposure. In small animals, such as mice, the blood may be found completely free after an exposure of several hours, while with larger animals it is much more difficult to destroy all the cells. The destruction goes on chiefly in the circulating blood itself, for at certain stages many degeneration forms may be encountered. Among the different varieties of white cells, the lymphocytes seem to possess the least resistance. Owing to the breaking down of the white cells, a leucotoxin is formed in the serum both within and without the body. It is an interesting fact that if this leucotoxin is injected into other animals, a decrease of the number of leucocytes may be seen soon after. This leucotoxin may be rendered inactive by heating up to 55° to 60° C.; it passes from the mother to the fetus by way of the placenta, and it will eventually produce an immunity against itself. The cause of death after exposure is only rarely to be ascribed to infection resulting from the dermatitis; in the majority of cases an intense nephritis must be held responsible. The hemoglobin, red blood cells and the blood platelets are only slightly affected by the Roentgen rays. P. LINSE and E. HELBER (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 5 and 6) have carried on similar experiments with radium and with ultraviolet light, but an effect upon the blood was never detected. It seems that these rays do not possess

the power to penetrate the tissues to the same extent as the Roentgen rays.

Anti-Body Against Tapeworm.—In order to determine if the precipitin reaction may be employed to detect the presence of tapeworms in human beings, J. LANGER (*Münch. med. Woch.*, Aug. 29, 1905) tested the blood of different individuals with an aqueous extract of worms. An appreciable reaction was not, however, obtained in a single instance. It is therefore not very likely that constituents of the worm pass into the blood of the host. The nourishment of parasitic cestodes is probably derived from diffusible proteids in the food of the host. It could not be determined that immune sera possess any value in antihelminthic therapy.

Carcinosis of the Thoracic Duct.—T. SCHWEDENBERG (*Virchow's Archiv*, Vol. 181, No. 2) states that carcinosis of the thoracic duct is found quite commonly with carcinomata of the abdominal organs. There is generally a direct transport of the malignant cells from the primary site into the receptaculum chyli, and from here they are carried into the subclavian vein, and finally reach the lungs, by way of the right heart. The tumor cells may also reach the lungs by retrograde transport through the lymphatics, and often pass through the lungs without forming metastases. It is even likely that a large percentage of the cells, which enter the main circulation, disappear without having given rise to tumors.

Plague in the Philippines.—A number of new facts relating to the plague as it appears upon the Philippines, are communicated by M. HERTZOG (Bureau of Govern. Lab., No. 23). He states that the importance of properly diagnosing the first case of plague cannot be overestimated. The disease does not make its first appearance as a widespread epidemic, as is often the case with Asiatic cholera, when caused by a contaminated water supply or from other sources of infection. Instead, it begins very insidiously from one or several imported cases. It is frequently easy to hold the plague in check, provided it is recognized and properly fought at an early stage. In studying the histopathology of plague, a highly interesting change was found in the kidneys, namely, extensive and frequently occurring hyaline, fibri thrombosis of the glomerular capillaries. The histological examinations, in their entirety, have led to the conclusion that plague in its most common bubonic type should not be looked upon as a hemorrhagic septicemia, because, according to all appearances, the infecting bacilli remain practically localized until the agonal stage of the disease is reached. One case suggested the possibility, if not the probability, of an infection through the agency of pediculi. It was also found that the rodents in the neighborhood of Manila were infested by a species of *Siphonoptera* not heretofore described. This new species of flea probably does not, however, take any part in the conveyance of the disease. Important points in making a diagnosis of plague at autopsy are the following: The bubo is generally present in the femoral, axillary or cervical regions. The surface of the body is often cyanotic, and hemorrhagic skin eruptions may be present. A dark, blood-tinged, foamy fluid may ooze from the nostrils. The dissection shows multiple subserous and submucous hemorrhages, general congestion, splenic tumor, parenchymatous degeneration of the kidneys and often pneumonic consolidation. Smears and cultures should be made from the buboes and the blood, and pieces of tissue should be fixed in Zenker's fluid for microscopical examination. Finally, animals must be inoculated. After twenty-four hours, a bacteriological diagnosis is generally possible.

Freezing Points of Blood and Urine in Pneumonia.

—F. E. SCHMIDT (*Journal A. M. A.*, September 23), after first reviewing the literature of cryoscopy in medicine, and especially in pneumonia, describes his methods and precautions for thus testing blood and urine, and gives tabulated details of observations in twenty-four cases of pneumonia, in males between the ages of eighteen and fifty years, and all apparently in good health before the attack. The tests were made daily, the patients being given essentially the same diet of milk, and later broths and plenty of water, and kept under the regular stimulating treatment. A few had salt irrigations. The freezing points of the blood and urine, the quantity and specific gravity of the urine and the amount of urea were recorded, and albumin and casts noted when present. He finds that there is an absolute lowering of the freezing point of the blood in pneumonia depending in some way either on the extent of consolidation of the lung or on the height of the temperature, or both. This lowering is more than can be accounted for by the increased vascularity of the blood from deficient aeration. The concentration of the blood increases, as shown by the lowered freezing point, as the disease progresses, up to the time of crisis. Some time is needed for the elimination of the excessive accumulation of products in the blood, hence several days elapse before the freezing point rises again to normal. In cases in which the heart perceptibly weakens the freezing point becomes still lower, and in fatal cases when the heart gives out, the freezing point of the blood is extremely low. The lowered freezing point of the blood is apparently not due to deficient kidney function, but may be due to the inability of the kidney to excrete the excessive products of metabolism. The freezing point of urine in pneumonia is considerably lowered, more than would be accounted for by a mere concentration of normal urine. The chlorids excreted are diminished, on account of a lesser amount taken in (Sollmann). The quantity of the urine is decreased while the freezing point is lower, and this lowering is not due to chlorids but to metabolic molecules excreted. The freezing point of the urine does not rise to normal until after that of the blood; that is, several days after the crisis. The specific gravity of the urine is no accurate index of its degree of concentration. The freezing point of the urine bears no constant relation to that of the blood normally, for with a freezing point of blood at -0.54° C. the freezing point of the urine may be normally lower than in a case in which the freezing point of the blood is -0.57° C., or vice versa.

Saccharin.—S. A. MATHEWS and H. MCGUIGAN (*Journal A. M. A.*, September 16) have studied the effect of saccharin on oxidation and digestion. Their methods and experiments are described in detail. They find that it has marked retarding action on oxidation in the blood and muscles and also on the action of the digestive juices, especially those of the salivary glands and pancreas. Its prolonged use, therefore, is likely to produce digestive disorders. When injected into the circulation of an animal, it produces depression and stupor, followed by labored respiration, similar to asphyxia. This is evidently due to its inhibitory action on the enzymes of the blood and tissues, and also probably accounts for the headaches and other symptoms it produces. It may be considered a general protoplasmic poison, in that it inhibits nearly all the fermentative processes of the body, thus interfering with metabolism.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor.
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

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LEA BROTHERS & CO.,

No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, OCTOBER 28, 1905.

THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE AND THE TREASURY DEPARTMENT.

It is a pity that in these strenuous days of the "Keep Commission" and the general investigation of the financial affairs of all the departments of the United States Government, in Washington, that even a shadow of a question should have been raised as to the management of the Public Health and Marine Hospital Service.

For that this service has done good and faithful work there can be no question. That it has gained both the confidence of the general public and the respect of the medical profession is beyond doubt or cavil, so that just now, when the eyes of the world have been turned to it and its thorough and competent handling of the very difficult problem at New Orleans of the yellow-fever epidemic, it seems doubly hard that what at the best, or the worst, seems to be nothing more than a few mistakes in business management should be heralded to the world through the medium of the daily press with almost as little consideration as if it had been either tainted with "graft," or weighed down by incompetency.

For in the first place physicians are not "business men," for the very qualities that insure success in the practice of medicine militate against it in the commercial world, and by nature and

training doctors are unsuited to cope with the intricacies of modern frenzied finance as any body or profession of men can possibly be. On the other hand, while two wrongs do not make a right, yet the force of a bad example becomes a mighty lever when it enters into almost every branch of the government service and heeds a carelessness of expenditure that gradually increases until it is, for the time, checked by a wave of reform, such as is now sweeping the executive departments with all the proverbial cleanliness of the new broom.

That it may not be within the jurisdiction of the Marine Hospital Service, without the sanction of Congress, to send two of its officers to a foreign country, with pay, mileage and other expenses allowed, to study the nature and latest treatment of any particular disease, may be true. If so, the proper authorities have the power to hold out the restraining hand, as was recently done, and that ends it, without the necessity for any further comment, but when we remember that a very much larger party has just returned from an "inspection" and study of Philippine affairs, it strikes us that the amount of benefit received, as compared with the sum of the public funds expended would have been very much greater in the one case than it will prove in the other.

For when the head of a department sees his confrères sending delegations to wander to and fro over the face of our newly acquired earth, and when we remember that every congressional corpse that is sent back to its native heath is invariably escorted by a guard of honor, to whom are furnished not only tickets and food, but cigars, liquors and "groceries" of the typical legislative type, he becomes so inured to the lavish expenditure of public funds that the enormity of detailing two surgeons to study foreign diseases does not become apparent to him until he is rapped over his official knuckles by the overruling and countermanding of his orders.

As to the criticism of official carelessness in keeping sufficient check on the disbursing officer, it was simply a question of overconfidence in a trusted employee. This has happened before, even in business circles, and will undoubtedly occur again. This particular clerk has been in the service for many years; had gained the confidence of his superiors, and from the evidence produced at his trial, seems to have been possessed of even more than the coolness that is generally associated with successful crime. Thus, on

his detection, which was brought about by his absence through sickness, he merely remarked, "I was up against it, I needed the money and I took it; that is all there is to it." Now, when a man is cool enough to accept detection in this manner, and when he is sufficiently skillful in his methods to have deceived the officials of the United States Treasury, from whom he obtained the money, it does seem unjust to hold a physician to account.

As will be seen, these charges so far are not enterprises of great pith and moment, and to this category may be added that of the purchase of hospital supplies and stores. As is well known, these have been of most excellent quality and have been bought at most reasonable rates; in fact, for this reason the Panama Canal Commission employed them as a purchasing agency.

There may have been at times the adoption of a worthless invention that could not be judged of until the experiment was made. The proof of a pudding is in the eating, and if a lamp would not hold out to burn until even the inventor could return, there is nothing to do but to abandon it. It was surely not the fault of the service that it was the flame and not the sun that went down when they trimmed the lamp, and the United States does not possess an Aladdin that will exchange new lamps for old ones. The use of formaldehyde, too, has been superseded by other fumigants, and the employment of the autoclave.

All this, as we have said, is inconsequent, not to say puerile, but if the Marine Hospital Service *has* been sustaining more hospitals than are required; if they have been conducting them with such careless methods of expenditure that the expense of the patients exceeds the sum of three or four dollars a day per capita, if they exceeded the congressional appropriation for their new building, then they have committed a grievous fault and grievously have they answered it. For it has been decided by the Treasury Department, under the jurisdiction of which the Marine Hospital Service is placed, not only to close many of the already existing hospitals, but also to abandon all work on the new building now under process of construction.

Now, this will be, it is needless to say, a severe blow to the Public Health and Marine Hospital Service, and the loss of the new building may, and probably will, cripple the field of its usefulness, but the hard and unjust part is that the present condition of affairs is not the result of direct

charges, which might have been met and refuted, but is the expression of the implied opinion of the Treasury officials who made the investigation, the only promulgation of the finding of which has been these harsh and drastic orders.

A GLEAM OF HOPE IN CANCER.

In recent years, owing to the failure, after the raising of many hopes, to find the causative agent in cancer, there has been a distinct tendency toward pessimism in the consideration of malignant disease. The disappointment with regard to the ultimate effect on patients treated by the X-rays and other radio-active agents has added to this darker aspect of the question. The result has been a period of discouragement.

It is all the more interesting then to find in the discussions of the subject at the New York State Medical Association, last week, an abstract of which will be found in the society proceedings of this and next week's MEDICAL NEWS that a more hopeful view of the cancer problem is opening up. This comes not only in a distinct recognition of the gradual improvement of surgical statistics, which is quite remarkable, but also in the biological aspects of cancer.

In cancer of the breast nearly one-half the cases operated upon now live beyond the three-year limit. As at least one-fourth of all the cases operated upon are considered hopeless by the operator, but are given the benefit of the doubt, it is indeed encouraging to note how many genuinely successful operations are performed.

It is especially from the study of cancer in animals that more hope of an ultimate solution of the awful problem of cancer is now derived. It is not generally known, even to the medical profession, that a great many of the smaller animals suffer from true cancer, but careful investigation in the laboratory has now put this beyond doubt. As a consequence, there is scarcely a breeder of small animals in the country who has not posted up the notice sent out by various cancer investigators that special rewards, as high as \$25, will be paid for animals that have tumors. Almost needless to say one result of this is that many opportunities for the study of malignant tumors in animals are being provided, and the knowledge of cancer is advancing apparently with more rapidity than ever before in medical history. In the very small animals particularly, such as mice, the history of cancer is so condensed that its study is much more fruitful and satisfactory than would be even the most careful clinical ob-

servations made upon the corresponding features of cancer in human beings.

Those who still may harbor doubts as to the benefits to be derived from vivisection, or, as it should properly be called, the study of animals, in order to add to our knowledge of the physiology and the pathology of human beings, should read these recent chapters in medical science, with regard to observations on tumors, and be convinced of how much good can be done. Whatever of benefit accrues is to redound as equally to the animals themselves as to man.

In mice the spontaneous cure of cancer occurs not infrequently and serves to demonstrate that there is in these animals a distinct resistance to the spread of the disease. This may, however, be overcome with fatal issue. Anything that will embarrass the growth of the tumor at the beginning of its career is almost sure to bring about its disappearance. It would seem that the animal has a certain amount of immunity to cancer, but that the rapid growth of the neoplasm and the absorption into the system of the toxic secretions of epithelial cells paralyzes this important function of the animal's blood serum. If the tumor be pricked with the needle in a number of places with the production of hemorrhages, especially along its advancing edges, then it will usually disappear. Always provided, however, that it has not reached a certain limited size, beyond which the animal's immunity seems unable to cope with it. After this the irritation of the tumor causes it to grow more rapidly than before, rather than hinder its growth.

As is well known, the spontaneous cure of cancer in human beings is not rare. A number of cases were reported at this meeting, and it is not an unusual experience to find that recurrent carcinoma particularly may be spontaneously conquered by the natural resistance of the tissues. In mice, the animals which have had a cancer and have recovered from it are more strongly resistive to further invasion of the disease, so that their serum seems to acquire additional immunity. The possible preparation of a curative serum for cancer then does not seem entirely out of the question, but, on the contrary, appears to be a near step in progress. In the meantime the interesting fact that by experimental methods cancer may be studied in its most intimate workings, represents an advance greater than any hitherto made in our history of cancer progress, and we sincerely hope that the bright promise it seems to hold out will be fulfilled.

ECHOES AND NEWS.

NEW YORK.

West End Medical Society.—The sixth regular meeting of this society will be held Saturday evening, October 28, at the residence of Dr. James E. Newcomb. The paper of the evening will be read by Dr. Douglas H. Stewart on "Thoughts on the Last Month of Pregnancy."

Anniversary Meeting at the Academy.—The Officers and Fellows of the New York Academy of Medicine request the presence of the members of the Academy at the anniversary meeting and reception, Thursday evening, November 2, at 8:30 o'clock. The anniversary discourse will be delivered by Professor Arpad G. Gerster, M.D., on "The American System of Hospital Economy," in Hosack Hall, 17 West Forty-third Street. Reception at 9:30 o'clock.

Sydenham Hospital.—At the last meeting of the Board of Directors of the Sydenham Hospital Mr. Wm. I. Spiegelberg announced the following donations: Meyer Guggenheim Sons presented \$5,000 to endow a bed in memory of their late father. Mr. Isaac Guggenheim personally presented \$2,800, and in addition through the efforts of Mrs. Isaac Guggenheim, \$700 were given to the maternity division. Mr. Samuel Lee Schubert donated the use of the Lyric Theater, with eminent artists, for a benefit performance November 26, 1905.

The Medical Society of the County of New York.—At the last regular meeting, held October 23, 1903, which was the one hundredth anniversary of this society, the following program was given: Report of the Treasurer, Dr. Charles H. Richardson; Report of the Board of Censors, Dr. H. Seymour Haughton, Secretary; Report of the Committee on Audit, Dr. John C. Minor, Chairman; Report of the Committee on Discipline, Dr. Charles P. Munn, Chairman; Report of the Comitia Minora, Dr. J. Milton Mabbott, Assistant Secretary; Report of the Editor of the Directory, Dr. Edmund Prince Fowler; Report of the Milk Commission, Dr. Rowland W. Freeman; Report of the Counsel of the Society, Mr. Champe S. Andrews; Origin and Early History of the Medical Society of the County of New York, Dr. John Van Doren Young; Some of Our Predecessors, Dr. A. Jacobi; Objects to be Attained by Our Society in the Twentieth Century, Dr. Edward D. Fisher.

A Great Undertaking.—Those who have not had experience with promoting large charitable affairs can have no conception of the tremendous amount of labor connected therewith, but those who know a little about it will appreciate the colossal task which the Committee for St. Cecile Lodge has before it in promoting the monster concert for the benefit of the Masonic Sanatorium for Consumptives, to be held at Carnegie Hall, Sunday afternoon, October 29. It is probably strictly within the lines of truth when we say that never before in the history of Masonry in this country has any single lodge attempted such a gigantic task as in this instance; but it is becoming an adage that "Whenever St. Cecile sets out to do anything, she does it." After weeks of labor, the committee is at last able to announce that it will "make good" its promises, and even better. The sale of seats and boxes is progressing rapidly, and the committee thinks it highly probable that before another ten days have passed the entire house will be sold out. It is, therefore, advisable for those who desire to have good seats for the concert to order them at once. One of the

most noteworthy features of the concert will be the appearance of Mme. Lillian Blauvelt, the world-renowned soprano. This will be her farewell appearance on the concert stage, or for at least three years, as she is under contract to sing in opera for that period. Another eminent soloist will be Gwilym Miles, one of the most noted barytones in this country, who has just returned from an eighteen months' stay in Germany, where he created quite a furore at his appearance in the different large concerts and oratorios there. Mr. Miles is a member of Benevolent Lodge in this city. This will be his first appearance in this country after two years. The grand orchestra, composed of 125 of the very best orchestral artists in the City of New York, will be under the direction of America's most famous conductors—Victor Herbert, Walter Damrosch, John Philip Sousa and Nahan Franko. The great bandmaster Sousa wired the committee from Kansas City that he was only too happy to assist the great cause, and those who admire his marches will have the pleasure of listening to his most famous one, played by this grand orchestra and conducted by himself. Sousa, by the way, is a Mason. Victor Herbert is probably the best-known composer of the higher class of light music in the world, and as an orchestral conductor is unexcelled anywhere, having conducted some of the greatest orchestras, his own as well as the Philharmonic and others. Walter Damrosch is one of the greatest symphony and classical conductors of the times, and to music lovers all over the country he needs no introduction, having conducted his own symphony orchestra in all of the large cities, and for many seasons toured the United States with his great German Opera Company. Nahan Franko, of King Solomon's Lodge, one of the conductors of the Metropolitan Opera House, is a conductor of whom Americans can be proud, as an American product. He has won international fame, not only as a violinist, but as a grand opera and concert conductor. Twenty-seven of the operas produced at the Metropolitan last season were conducted by him with great success. The committee is proud of its success in securing him. A grand chorus, comprised of 300 picked voices from the Brooklyn Oratorio Society and the best church choirs in this city, under the direction of the well-known choral conductor Walter Henry Hall. There is no choral conductor in this country who knows better how to train voices and how to rehearse and conduct a mammoth chorus better than Hall, who has become justly famous in his particular forte. Mr. Hall, by the way, is a member of Baltic Lodge, Brooklyn, and, though it means considerable work for him, he was very pleased indeed to show the true Masonic spirit, and volunteered to gather together the great chorus and rehearse and conduct it.

PHILADELPHIA.

Officers Elected by State Nurses.—At the third annual meeting of the Pennsylvania State Nurses' Association officers were elected for the ensuing year. Miss Margaret Whittaker, of Philadelphia, was elected President; Miss Mary Wier, of Pittsburg, Vice-President; Miss Mollie Mallory, of Philadelphia, Second Vice-President; Mrs. Lottie Lewis, Braddock, Secretary; William McNaughton, of Pittsburg, Treasurer. The following were elected Directors: Mrs. Hattie Cochran, of New Castle; Misses Anna Brobson, of Philadelphia, Emily Gamewell, of Scranton, and Helen Hunt, of Pittsburg.

Bequests.—Charles J. Gallagher, a wealthy distiller, who recently died at 922 North Broad Street, left \$5,000 each to St. Joseph's Orphan Asylum, to House of the Good Shepherd, to Little Sisters of the Poor, and to the Philadelphia Protectory for Boys. David Teller, a retired tobacco merchant, who recently died at 903 North Eighth Street, bequeathed \$250 to the Jewish Hospital and \$250 to the Jewish Foster Home and Orphan Asylum. Susan C. Whelan, upon her death, gave to the Maternity Hospital \$500, and to the Catholic Protectory for Boys an equal amount. The will of John Joseph Alter bequeathes \$50,000 each to Hahnemann and to Jefferson Hospitals. This money is for the purpose of erecting a "John Joseph Alter" memorial in each institution; each hospital received an additional \$10,000 to endow two beds. The Board of Trustees of each institution shall decide upon the character of memorial most suitable. The University of Pennsylvania Hospital received \$10,000 to establish two beds. The will of Mrs. Frances E. Loeb, who recently died in Cheltenham Township, leaves \$500 each to the Jewish Hospital, at Tabor, and the Jewish Maternity Home. The Presbyterian Hospital will receive, according to the will of Emma C. Tildmann, a bequest of \$7,800.

Changes in the Department of Public Health and Charities.—The first move in this department was the resignation of George W. Sunderland, Assistant Director of the Department of Public Health and Charities. This step was no surprise to the citizens of Philadelphia, especially after the recent exposures. It was said that the office was abandoned because of Mr. Sunderland's health. The public is somewhat loath to accept this statement in its entirety. Mr. Harry Mackey was elected Assistant Director of the Department of Public Health and Charities, the position just vacated by Mr. Sunderland. The first step of the new Director was to institute an "anti-graft" crusade, especially upon the House Drainage Department in the Bureau of Health. As a result of this crusade Frank Runkle, clerk in the registration division of the Bureau of Health, was requested to resign; Gilbert Stackhouse, a nuisance inspector, met the same fate, and Charles Polk was dismissed from the department, where he held a position because of his ability to control votes in a division of the Eighth Ward. The resignation of Director Martin had been hinted at early in the summer and again when the Assistant Director made his exit, but it was not known to the public until Monday, October 23, that Dr. Martin had tendered his resignation to the Mayor the preceding Saturday. The letter was short and rather characteristic of Dr. Martin. He told the Mayor "times are too strenuous for his peasant soul."

Dr. Dixon Talks to Women's Clubs.—After the "Pennsylvania State Federation of Women's Clubs" finished with the election of officers they listened to an address made by Dr. Samuel G. Dixon, Commissioner of Health. He spoke of the aid women can be in the prevention of disease, and then told them of the most important work now occupying the time of the Department of Health. Ignorance of the scourge smallpox would be, if it were not held in check by the almost universal practice of vaccination throughout the civilized countries, he believes, is the only means by which the antagonism to the performance of vaccination can be accounted for. The carelessness to carry out this comparatively simple procedure is so extensive that the State must institute laws making the procedure compulsory. He pointed out that among the anti-vaccinationists are also supposedly intelligent

people. Dr. Dixon also noted that none the less important than the universal vaccination is the boiling of the drinking water to avoid such infections as typhoid fever and other diseases. He requests that they as household overseers personally attend to the matter of boiling the water to be used for domestic purposes. He then spoke of the treatment of diphtheria and of the rewards of Behring. The clubs were informed that the public will now be supplied free of charge the antitoxin. He holds women as co-workers in the line of sanitation, and notes that the cultivated classes of America are the counterpart of the nobility across the Atlantic, but he believes that the women of this country exert a greater influence and that the influence carries with it responsibilities as real and as exacting as those of the nobility.

CHICAGO.

Degree Conferred on Dr. Murphy.—The degree of Doctor of Science was recently conferred on Dr. John B. Murphy, of Chicago, by the University of Illinois.

Address by Professor von Noorden.—Professor C. von Noorden, a distinguished foreign physician, recently addressed the members of the Chicago Medical Society on the subject of "The Pathologic Chemistry and Treatment of Gout." He will be the guest of this society during his stay in Chicago.

Chicago Surgical Society.—At the annual dinner of this society, held October 13, the following officers were elected: President, Dr. D. A. K. Steele; Vice-President, Dr. D. W. Graham; Secretary, Dr. William Hessert; Treasurer, Dr. Frederic A. Besley; Members of the Council, Secretary, Treasurer, Dr. L. L. McArthur, Dr. E. Wyllys Andrews and Dr. A. J. Ochsner.

Chicago Gynecological Society.—The twenty-seventh annual dinner of this society was held at the Auditorium Annex, October 20, and was attended by 100 physicians. The guests of honor were Drs. Hunter Robb, Cleveland, Ohio; Frank Billings and Henry S. Tucker, Chicago, and Matthew D. Mann, of Buffalo, N. Y. At the election of officers, held before the annual dinner, the following were chosen: President, Dr. Frank T. Andrews; Vice-Presidents, Dr. J. B. De Lee and Chas. E. Paddock; Secretary, Dr. Henry F. Lewis; Treasurer, Dr. Chas. B. Reed; Pathologist, Dr. Gustav Kolischer; Editor, Dr. Rudolph W. Holmes; Councillor, Dr. Franklin H. Martin. The dinner was followed by informal talks by the guests and members.

Condemnation of Meat.—Four city meat inspectors on duty at the Union Stock Yards during the week condemned and supervised the tanking of 131,954 pounds of meat, including 115 cattle, 438 hogs, 29 sheep, 6 calves 36 quarters of beef and 5,576 pounds of dressed meats, sour hams, bacon, etc. This is an increase of 46,053 pounds, or more than 53 per cent., over the amount condemned by three inspectors the week previous. Eighty per cent. of the condemnations were for tuberculosis. Three tuberculous cattle, two "downers" and 7,901 pounds of meats, overlooked by the Government inspectors, were condemned by the city inspectors. The carcasses of seven tuberculous cattle, with the evidence of the disease cut away, were condemned by the city inspectors, in the coolers, after having passed the Government inspectors.

Infectious Diseases.—Chief Medical Inspector, Dr. Heman Spalding delivered by invitation a timely address on the infectious and contagious diseases last Thursday evening, the 19th inst., before one of the local medical societies. Concerning pneumonia, which is again disputing with consumption for the captaincy of the men of death, Dr. Spalding cited

statistics of the United States Census Bureau and of the Chicago Register's office, showing that one-tenth of all deaths in the United States is chargeable to pneumonia, and that in Chicago from 1900 to 1905 more than one-eighth of all the victims of disease died from its effects, the death rate being greater by one-third than from consumption and 85 per cent. more than from all other acute contagious and infectious diseases combined, including diphtheria, measles, smallpox, typhoid fever, whooping-cough, influenza and scarlet fever. In Chicago during the five years there were 8,353 deaths from these diseases, compared with 15,327 from pneumonia. "To escape pneumonia," the lecturer said, "is primarily a question of right living. The presence of the germ is not enough to produce pneumonia. There must be a deviation from the normal standard of health, which depends almost entirely upon the manner of living. We may not be able to avoid the access of the germs which produce pneumonia, but we can in a large measure live so as to rob them of the opportunity to become fatally active."

Briefly summarized Dr. Spalding urged the following evils to be avoided and precautions to be taken to keep the vital resistance of the body up to the normal standard: Drunkenness; foremost among all the habits of mankind that aid in the propagation of the disease. Congested mucous membranes offer ideal soil for the germ. Overeating; disturbs digestion, interferes with circulation. Failure to keep mouth and teeth clean; convenient lodging places for the ever present germ are afforded. Overheated houses; make persons too susceptible to outdoor cold; light clothing, including underwear, should be worn indoors. Breathing through the mouth; bad for many reasons. Frequent baths will keep the skin active and free from effete material.

Civil Service Examination for Members of the Cook County Staff.—The cooperation and good-will of the medical profession are solicited for the permanent establishment of the merit system in the choosing of attending physicians for the County Hospital of Cook County. This system, administered under the supervision of the Civil Service Commission, guided and assisted by the consulting staff, probably insures fairer and better results than can be attained by any other method in a community living under our form of government. The Civil Service Commissioners of Cook County have requested the consulting staff of the hospital to act in the capacity of an examining board, with the privilege of adding to their number such experts as in their opinion would be best qualified to examine in the different specialties. The resolution of the County Board under which the Commission is to act specifies departments of the staff, the candidates for which are to be examined by subcommittees from the examining board. Special examining boards are appointed on the following subjects: Surgery; orthopedic surgery; skin and venereal diseases; diseases of the eye; pathology; X-ray; medicine; children's and contagious diseases; nervous diseases; diseases of the ear, nose and throat; pathologic chemistry; obstetrics and gynecology.

The Board of County Commissioners, in their appointments recognize three schools of medicine, the regular, the homeopathic and the eclectic; but in the conduct of the examination the Civil Service Board is not allowed, under the law, to discriminate, and all candidates must be subjected to the same examination by identical examiners. To obviate any difficulty concerning this matter the examining board passed the

following resolutions: (1) That the subject of medicinal therapeutics be excluded from the examination. (2) That at least one homeopathic and one eclectic member of the examining board be made members of the subcommittee on surgery, obstetrics, eye, ear, nose and throat; children's and contagious diseases, which are the departments in which they are represented on the present hospital staff. The following general provisions, covering all examinations to be held, were also adopted: That only such questions shall be submitted in each department as have a direct bearing on the clinical management; that a chronological statement of education, experience, position and past work, tending to qualify the applicant, will be requested; that a majority of the departmental examiners must pass on all examinations, and that no written examination shall extend longer than two and a half hours.

Another matter on which an explanation would seem advisable relates to the action of the President of the County Board in requesting the members of the present staff to enter for examination. Mr. Brundage, who is extremely interested in hospital affairs, and who generously followed the advice of the consulting staff in the present appointments, recognizes that the term of six years, for which he appointed these members, may not prove acceptable to any future board of commissioners, and as he desires definite permanency in these positions he would like an opportunity to reappoint as many members of the present staff as possible under the Civil Service law. He will reappoint as rapidly as possible all members who pass the examination. These appointments, however, must be made in the order of the standing of eligibles on the Civil Service lists. As only an average of 70 out of 100 is necessary to pass, the President is confident that his suggestion that the examination be taken cannot prove a hardship. The present members of the staff may retain their positions as "holdovers," subject to the favor of the county administration, but all vacancies must be filled from an eligible list. Appointees from these lists will hold their positions for six years from the date of their appointment under Civil Service, and cannot be removed within that period except for cause. The series of examinations began October 23 at the Cook County Hospital, and will continue from date to date, as fixed, until completed.

GENERAL.

Flies and Cholera.—Prof. Chantemesse, member of the Pasteur Institute, lecturing at the Academy of Medicine last week, said his experiments had proved that flies were the greatest disseminators of cholera in the towns.

A Dental School of Exceptional Advantages.—The dental department of the Medico-Chirurgical College of Philadelphia permit the students in dentistry to enjoy all the privileges of the students of the medical school, a privilege which is rarely accorded students of dental colleges. A system of quizzes is conducted free of charge which is a material advantage to the students. An abundance of material for practical work in the dental infirmary is supplied each individual. Each student is given the widest latitude and the greatest incentive for individual work, which has resulted in some of the greatest achievements by undergraduates in the dental profession.

Information Wanted.—The psychophysiology of anesthesia is a productive subject greatly in need of adequate investigation and discussion. Both pure science and practical surgery have doubtless much to gain from a deeper-going study of experiences under

ether, chloroform, nitrous oxide, etc., than has as yet been made. Scientific literature has frequently contained accounts of isolated individual experiences reported most often because of their strangeness. A very large number of descriptions of the ordinary experiences is what is now desired, and to this end blanks have been prepared on which replies to certain simple questions may be written. All persons, and especially hospital surgeons, officers of medical societies, and instructors in medical schools, are respectfully requested to send to the undersigned for as many of these blanks as they care to distribute among persons who have been under an anesthetic. These will be gratefully sent, and received when filled out.—George V. N. Dearborn, M.D., Department of Physiology, Tufts College, Medical and Dental Schools, Boston, Mass.

Civil Service for Male Physician in the Indian Service.—The United States Civil Service Commission announces an examination on November 22, 1905, to secure eligibles from which to make certification to fill a vacancy in the position of physician (male), at \$1,000 per annum; San Juan, Indian Agency, N. Mex.; another, at \$900 per annum, at Fort Bidwell, Cal., and similar vacancies as they may occur in the Indian Service. As the Commission has experienced considerable difficulty in securing eligibles for this position, but five having been secured as the result of the examination held on September 13, 1905, qualified persons are urged to enter this examination. The examination will consist of the subjects mentioned below, weighted as indicated: (1) Letter-writing (the subject-matter on a topic relative to the practice of medicine), 5; (2) anatomy and physiology (general questions on anatomy and physiology, and histologic or minute anatomy), 15; (3) chemistry, materia medica, and therapeutics (elementary questions in inorganic and organic chemistry; the physiologic action and therapeutic uses and doses of drugs), 10; (4) surgery and surgical pathology (general surgery, surgical diagnosis; the pathology of surgical diseases), 20; (5) general pathology and practice (the symptomatology, etiology, diagnosis, pathology, and treatment of disease), 25; (6) bacteriology and hygiene (bacteriologic methods, especially those relating to diagnosis; the application of hygienic methods in prophylaxis and treatment), 10; (7) obstetrics and gynecology (the general practice of obstetrics; diseases of women, their pathology, diagnosis, symptoms, and treatment, medical and surgical), 15; total, 100. Seven hours will be allowed for this examination. Age limit, twenty-five to fifty-five years on the date of the examination. This examination is open to all male citizens of the United States who comply with the requirements. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the accompanying list, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application. As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will, therefore, arrange to examine any applicant whose application is re-

ceived in time to permit the shipment of the necessary papers.

OBITUARY.

Dr. ANNA C. REES, a well-known North Hudson physician, died last Wednesday at her home, 121 Palisade Avenue, Union Hill. She was born in Wales twenty-nine years ago, and had practised medicine nine years.

Dr. LOWELL HOLBROOK, the oldest practising physician in Connecticut, died last week at his residence in Thompson, Conn., after a long illness. He was eighty-seven years old, and had been in practice sixty-three years. He was Surgeon of the Eighth Connecticut Volunteer Infantry in the Civil War.

Dr. J. HOWARD TAYLOR, a specialist on nervous diseases, died at his home in Philadelphia last week of senile debility, aged eighty years. He fell on the sidewalk several weeks ago and never fully recovered from the shock. Dr. Taylor graduated from the University of Pennsylvania in 1852, and had been identified with the Bureau of Health for half a century, and was at one time the Chief Medical Inspector. He was a brother of Bayard Taylor, the poet and traveler, and was prominent in Masonry, having been a Past Master of Lodge No. 51.

CORRESPONDENCE.

"THAT UNPLEASANT CUSTOM."

To the Editor of THE MEDICAL NEWS:

DEAR SIR: In such iconoclastic terms, so we are informed by the public press, does "one learned physician" refer to the time-honored and soul-satisfying osculatory practice known as "kissing." The sanitary Solons of all nations, recently in convention assembled in "gay Paree," have solemnly placed the ban of official disapproval upon the habit of labial juxtaposition which has hitherto been regarded as "a picnic for two," even from the period of our common Edenic ancestors down to the present time. Thus, one by one, are we successively deprived of our cherished privileges, at the behest of the ruthless bacteriological Alexander who is ever seeking for new bacillary worlds to conquer. First we were warned of the danger to health and life from the handling of filthy lucre; next, that the luscious bivalve, yclept the oyster, when gently and sinuously tobogganed between the pillars of the fauces and adown the esophagus into the safe and capacious haven of our gastric viscus, is liable to carry along, as fellow passengers, countless myriads of Eberth's bacilli. Then came the disturbing information that the congealed H₂O, with which we were wont to cool our festive Martini or our gay and gregarious sherry cobbler, is often a veritable hotbed of pathogenic bacterial life (think, for a moment, of ice as a "hotbed"), and the dictum went forth, "Boil your ice!" Now, who ever heard of a decent cocktail made with boiled ice? Next to receive scientific condemnation was "my lady Nicotine," in the shape of the cigar with which we have been accustomed to solace our overworked neurones and to woo the goddess of rest and contentment, and, forsooth, because a colony or two of the *Bacillus Kochii* may have been transferred thereto from the lips of a phthisical cigar-maker. In view of these cruel curtailments of our inalienable privileges and pleasure, at the demand of modern science and because of the final crushing blow that robs us of the soul-inspiring privilege of osculatory exercise, is it not high time to inquire, "Where will it all end?" and "Is life worth living." We pause for a reply.

Very truly yours,

F. S. H.

A CORRECTION.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Permit me to make a correction in your issue of September 9, in the report of my remarks at the Medical Society of the County of New York.

You quote me as saying that the proteids, etc., of cow's milk are not of the same chemical constitution as in human milk. What I did say is that it has been so claimed, and that I supposed it to be the fact; but I went on to say that, notwithstanding such differences, they probably resemble each other more closely than either resembles anything else at our command, and that it was in making use of such resemblances that most of the advance of the last fifty years has been made in this line of work.

Again, you quote me as saying that when milk is not boiled, cereals may be used, etc. I said absolutely nothing about boiled milk, and the whole argument was that, except in older children, cereals ought not to be used as food, because, although many babies can digest them, more cannot, and there is no way of distinguishing which until harm is done.

Of course these are mere slips in writing out the stenographer's notes, but as they put me in the light of advocating what I have long opposed, I should be glad to learn that you will make correction at an early date. I think it probable that a proof was sent me, but if so, it has never been received. Kindly acknowledge the receipt of this note.

Yours very truly,

EDWARD M. BUCKINGHAM.

Boston, Oct. 22, 1905.

SPECIAL ARTICLE.

THE HERTER LECTURES ON DIABETES.¹

BY PROF. CARL VON NOORDEN,

PHYSICIAN-IN-CHIEF TO THE CITY HOSPITAL, FRANKFORT-A.-MAIN, GERMANY.

THIRD LECTURE—OCTOBER 11, 1905.

(Continued from Page 798.)

In diabetes the utilization of the carbohydrates is abnormally diminished; the cells allow the sugar of the blood to pass by unmolested. Is there besides this decreased utilization an increased formation of sugar? This question is an old one. The overproduction of sugar was the first to be considered as the cause of hyperglycemia and glycosuria. This is an important question, involving many problems in the domain of physiological chemistry. The overproduction of sugar occurs when substances not normally sugar-formers become such. Is this overproduction primary or is it secondary to the disturbances of metabolism that occur in diabetes? One explanation is that the overproduction is secondary to the demand made by the tissues. Normally these utilize the carbohydrates for work and heat. The forms used are glycogen, which is obtained from the cells where it is stored up, and sugar, which is obtained from the blood in steady flow. The latter is replaced in the blood as rapidly as it is removed, being supplied by the liver as rapidly as it is needed. If by hard work or exercise the glycogen store of the liver is exhausted, the proportion of sugar in the blood

¹ Abstract of Course of Lectures on Diabetes Mellitus.

² Delivered before the University and Bellevue Hospital Medical College, New York.

remains the same as before. There must therefore be other sources of sugar besides glycogen. These are probably fat and proteid. Whether or not the liver receives its signal for the conversion of glycogen into sugar, as the latter is needed, through the nervous system is not yet decided. There is a tendency nowadays to consider this regulation as a chemical one. It may be that the sugar content of the inflowing blood gives the regulating signal. In diabetes the tissues get hungry for sugar because they are unable to get it. From them the liver possibly gets the signals for the further mobilization of sugar. In the healthy the mobilized sugar steps out into the breach where it is used up. In diabetes the reserves are called out in vain; they cannot reach the place where they are needed, and they are uselessly squandered. The more the tissues hunger for sugar the more is the formation of sugar by the liver effected. In this way there is recklessly used up the material which in the healthy body is reserved for future need.

As regards the sources of sugar, the cells prefer the sugar obtained from the intestine to all other kinds. That is shown by the fact that the respiratory quotient rises one-quarter of an hour after the ingestion of carbohydrates, and continues as long as the latter remain in the diet. In most individuals the daily intake of carbohydrates is sufficient for the production of sugar. Of the other sources of the sugar, the proteids must first be considered. Does the knowledge of metabolism furnish any evidence of such an origin? Diabetics with severe glycosuria, when strictly dieted for a long time, continue to excrete sugar out of all proportion to the amount of carbohydrate ingested. If such a diet is also made poor in proteid the sugar in the urine sinks to a minimum or even disappears. If now albumen is added the sugar rapidly increases. Every busy practitioner has probably made observations of the same nature. Among physiologists E. Pfüger was the only one to dispute this doctrine, but he has recently acknowledged his error. It is now definitely established that sugar can be formed out of proteid, but it is still a difficult question to decide how the sugar is formed from the proteid. Kossel and Pavy believed that carbohydrates can be split off from the proteid molecule. The proteid is built up like a glucoside. This doctrine was not sufficient to explain all the facts. The carbohydrate group varies in the different albuminates, and is not large. The only proteids that contain much (20 to 30 per cent.) are the glucoproteids, mucin and ovomucin. The simple and much more common proteids, such as ovalbumin, contain at most from 10 to 15 per cent. Blood proteid contains 2 per cent., muscle proteid less than 1 per cent., while casein contains none at all. The percentage of sugar taken from the proteids ingested by diabetics is much higher than that which is found originally present in the proteid, being more than 50 per cent. Moreover, on a diet of casein, which contains no sugar in its molecule, the amount of sugar formed by the diabetic reaches its greatest extent. Ovalbumin which, of the ordinary proteids, is most rich in carbohydrate, yields the smallest amount of sugar. The conclusion to be derived from these facts is that there must be other groups of atoms in the proteid which yield the sugar. Such groups are the aminoacids, such as alanin, glycocoll, leucin. These are found in large amount in casein. If alanin is administered to a dog it is almost measure for measure transformed into sugar.

To explain the utilization of the aminoacids of the proteids, two alternatives present themselves. Either the aminoacids are regularly transformed first into carbohydrate before being oxidized, or else the transformation into sugar occurs only when the organism is in need of carbohydrate. The latter alternative is to be favored. In the normal individual ingested alanin appears almost wholly in the urine, while in the diabetic no alanin appears in the urine, but sugar does. The administration of different proteids permits the formation of different amounts of sugar in the diabetic. This question is important from the standpoint of dieting. On a diet of casein the most sugar is formed. Next comes meat; then the legumes; then egg albumen, and last of all the proteids contained in cereals. In severe cases of diabetes it is necessary to limit the amount of casein and meat in the diet.

The question of the origin of sugar from fats is difficult to answer. From the chemical standpoint it is explicable how sugar can be derived from the glycerin. The latter, as well as lecithin, increases glycosuria. As regards the formation of sugar from the higher fatty acids, there is no unanimity of opinion. Although from the chemical point of view it is difficult to conceive of the formation of sugar out of fatty acids, yet the reverse process, the formation of fat out of carbohydrates, does take place in the body. There are many examples of reversible processes in the body. The organism is able to split and build up proteid. There are anti-ferments as well as ferments. It has been sought to prove experimentally that sugar is formed from fatty acids. Seegen and later Bunge pounded liver substance together with fatty acids, and showed an increase in the amount of sugar present. With later improved methods the results have been negative. By means of another series of experiments, namely, feeding diabetics on fat, it was sought to prove that the latter is converted into sugar. Here the results were negative. Yet it must be borne in mind that it is not necessarily the fat taken as food that can be converted into sugar, but fat that has been stored up in the tissues may be thus converted. The fats taken in behave differently from the proteids. The latter are immediately disintegrated. The amount of fat oxidized depends on the amount of energy manifested, whereas, irrespective of the amount of energy put forth, the same amount of proteid in the tissues is uniformly burned. When more fat is taken in as food than can be burned up it is stored as fat. This easily explains how an increase of fat in the diet does not necessarily lead to glycosuria. It is essential to know how much of the sugar formed comes from proteids. The proportion depends on the form of the glycosuria. Thus in pancreatic diabetes 44 per cent. of the proteid is converted into sugar, while in phloridzin diabetes the proportion is 64 per cent. If the diabetic is kept for a long time on a carbohydrate-free diet, he excretes four times as much sugar as could be formed from the proteid represented by the urinary nitrogen. From this the conclusion is drawn that the sugar is formed from other sources than from proteid. In cases of the severer form of diabetes, in which there is no reserve of glycogen, one must regard fat as the source of the sugar. It must be confessed that in a few cases of diabetes more sugar is excreted than can come from the amount of carbohydrates and proteid available. I was convinced of this twelve years ago. We must think of a facultative diabetes. Ordinarily no sugar is

yet the ferric chloride reaction would still appear in the urine. Diabetic coma is not less common than it was at the beginning of that period. Its onset in many cases is deferred, yet it ultimately supervenes. There are, moreover, cases of diabetic coma, in which the blood gives an alkaline reaction. The kind of acid present in the blood, as well as of the amount, is significant. For a long time it was held that oxybutyric acid is not toxic, but this has been disproved by experiments performed in von Noorden's laboratory. Part of the diabetic intoxication is to be attributed to oxybutyric acid. Possibly among intermediate bodies may be found other poisons that produce this condition. The diabetic coma and the acid bodies may be the common consequence of the diabetic condition. This subject is of practical as well as theoretical interest. To reduce the amount of acetone bodies in the urine it has been advocated to limit the intake of fat and increase the carbohydrates in the diet. Yet, although an increase of carbohydrates ingested may cause a temporary diminution of the acetone bodies, yet, by aggravating the metabolic disorders that lie at the root of diabetes, the increased carbohydrates will cause an increase in the production of acetone bodies. The diabetic tissues are less resistant than normal tissues to adverse influences; hence, intercurrent affections have a more intense influence on the diabetic. The final coma is not something new; it represents the culmination of the diabetic process. It begins with drowsiness, mental haziness, dyspeptic symptoms, gastric hyperesthesia. These symptoms may extend over days or months. At first the patient can awake with an effort. Later he may be likened to one in an alcoholic stupor. The breathing, altered at first, finally changes to severe dyspnea. The pulse is quickened, but strong and full. Then the coma becomes complete, and 12 to 26 hours later, death ensues. Coma often attacks people who at the time feel perfectly well. Sometimes it is seen in one whose overtaxed brain has suddenly collapsed. Many acute infections favor the onset of coma. Among these are acute phlegmons, acute alcoholism, and chloroform and ether narcosis.

THE DANGERS OF PROGNOSIS OF DIABETES.

All patients have this symptom in common, namely, glycosuria, and although in all probability this depends on the same causes, yet the course and prognosis differ so markedly in different individuals that one would imagine he is dealing with distinct diseases. The variability is enormous. It is unfortunate that in the great majority of cases the disease is not recognized until it has advanced far and worked considerable havoc. It is rare for the disease to be discovered in its incipency. Traumatic diabetes, such as that resulting from injury of the brain, may thus be recognized. The glycosuria is only transitory. This is a true neurogenic diabetes, and most busy physicians have seen cases of it. In the great majority of this class of patients, however, is to be recognized a diabetes which has already been established. It is much more difficult to get information about the non-traumatic diabetes. Doctors and chemists who periodically examine their urine may thus note the beginning of the disease. The glycosuria is sporadic, coming and going, and may keep on in this way before the positive reactions become more frequent than the negative. Yet these people may be perfectly well many years later. The same is true of persons examined for life insurance.

In many of the cases of so-called early detection the glycosuria is transitory and shows itself under circumstances which would determine its appearance in normal individuals. It is well to take seriously every case of transitory diabetes; and by advising a diminution of the carbohydrates, guard against the possible final outbreak of the disease proper.

The circumstances under which diabetes is commonly discovered is that the patient presents himself complaining of neuralgia, or increased thirst, or frequent micturition, or mental depression, etc. These symptoms resist treatment. The urine is then examined and clears up the entire picture. Knowing how insidiously the disease develops it is the duty of the physician to examine the urine frequently. For the most favorable time for the treatment is the beginning. In some of the large factories of Germany many the employees are examined quarterly; their urine is tested for albumin and sugar. This procedure will undoubtedly add facts of scientific interest to our present knowledge of the beginning of diabetes. Most cases, before they are fully developed, have transitory attacks of glycosuria, extending over a period of many years. Neglect of the slight cases favors the later onset of complications, such as arterio-sclerosis and dimness of vision due to neuro-retinitis, complications which are more to be feared than the primary glycosuria. Gangrene occurs most commonly in people who have had diabetes for a long time without taking any precautions. One should not be satisfied with a temporary diminution of the high sugar content of the urine, but should look for the permanent freedom from the same. There is no disease in which such satisfactory results may be expected, with the prospect of good health vouchsafed for a long period of years, as by the conscientious treatment of mild cases of diabetes. In many patients, as the result of treatment, the tolerance for the carbohydrates increases. Such cases can be spoken of as a true cure, although the patient has the germ for a fresh outbreak. In this respect the disease presents a close analogy to tuberculosis.

There are cases in which no cure can be obtained, although the further advance is stayed. This forms the larger number of cases. By careful regulation of the mode of life, in spite of the long duration of the symptoms, the patient may live comfortably for many years. This rule is not applicable to young people up to the end of the third decade. In children there frequently occurs a glycosuria which is temporary and of no account. If true diabetes occurs the end can be deferred only for a short time. In severe diabetes the urine is never free from sugar, in spite of the restriction in the intake of carbohydrates. At first 50 to 60 grams of carbohydrate are well tolerated, but the patient is sure to lose in time this tolerance entirely. Severe and slight diabetes are not identical with severe and slight glycosuria. As regards the general prognosis there is not a single case of diabetes in which a perfect cure occurs. But intelligent treatment will produce valuable results, and one should be contented if further mischief is prevented. There are many complications which are relieved by proper treatment of the primary disease. Thus, a patient in whom sharpness of vision was reduced to one-tenth recovered his full visual power in four weeks. Loose teeth may become firm, pruritus abolished and the muscles stronger.

(To be Continued.)

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Twenty-second Annual Meeting, held at the Academy of Medicine, New York City, October 16, 17, 18 and 19, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

THIRD DAY—OCTOBER 18TH.

(Continued from Page 804.)

Diagnostic Acids in the Feces.—Dr. Heinrich Stern, of New York, said that much definite knowledge could be obtained from a sample stool taken at random. If the feces are to be of use in diagnosis, as much care must be taken to secure a proper sample as in the case of the urine. Test feces are what pass through the rectum from thirty to forty-eight hours after the ingestion of a known quantity of the usual amount and kind of food. From this something can be learned both as regards gastric and intestinal digestion, though, of course, it is most valuable for intestinal digestion.

Changes Due to Gastric Indigestion.—Schmidt declared that whenever gastric fermentation takes place connective tissue appears in the feces. On the other hand, whenever connective tissue is found in the stools the conclusion must be that gastric fermentation is taking place to a considerable degree. This rule is not entirely true, however. In all feces small quantities of connective tissue will be found. When larger quantities occur, then it may be concluded that gastric fermentation is at work, and that there is serious disturbance of gastric digestion.

Pancreatic Digestion and the Feces.—It was hoped that the examination of the stools would reveal much with regard to the presence of bile and pancreatic secretion and with the extent of the disturbance of this latter gland, especially whenever any chronic pancreatic process was present. This expectation has, however, been unrealized. It is easy to recognize serious lesions of the pancreas because of the presence of neutral fats in the stools. Slight amounts of pancreatic disturbance, however, cannot be recognized readily, and occasionally even considerable degeneration may take place without a corresponding change in the stool.

Organized Malpractice Defence.—Mr. James Taylor Lewis, of New York City, told what organized malpractice defence does for the profession and for the public. He said that a few years ago the ratio of malpractice suits was one to every hundred and fifty doctors, or one to each doctor in every hundred and fifty years. At the present time this number has fallen to one to every two hundred and seventy-five doctors. Much of this is due to the development of organized methods for defence. The best of these is undoubtedly that the medical society of the State shall provide for such defence. Not infrequently doctors allow themselves to be blackmailed because of not caring to risk the publicity of malpractice suits. Not infrequently when the doctor's bill is sent a suit for malpractice is threatened if he attempts to collect it. This is often only a bluff, and every successful case will only lead to further annoyance in the matter. On the other hand, as surgery and the use of many physical agents, such as the X-rays, have advanced in medicine the professional mind is apt to be hampered in its judgment by fear of suits for malpractice, since accidents will sometimes happen in spite of the greatest care. At times the remark of a subsequent physician are the grounds

for the malpractice suit, and there is every need for physicians to be extremely careful.

Progress in Legislation and Organization.—Undoubtedly many malpractice suits would be done away with if the parties to them were compelled to file a bond for the cost before entering upon the action. As it is, they not infrequently default, throwing the cost upon the county. It is only the common variety of scoundrel who attempts these suits for malpractice, and the best possible deterrent is for him to find that the whole medical profession of the State stand behind each individual member of it to help him defend his rights. The shyster lawyers who take up these suits are very much discouraged if they once realize that every case is to be carried to the court of last resort in spite of cost, yet organized malpractice defence is not expensive. Certainly in a large society of over five thousand it need not cost more than fifty cents a year to each of the members. Even in smaller State Societies the expense would not be more than a dollar. As the result of the attempt to secure it in New York, Maryland has taken up the same scheme, and four other States are planning to follow. Evidently this is a great good that should be continued under the new régime of the Amalgamated Society.

SYMPOSIUM ON HYGIENE AND PREVENTIVE MEDICINE.

The first part of this symposium was occupied by a discussion of protection of the water supply of New York City and incidentally of the conditions of water supply of other cities. The symposium was opened by Dr. Thomas Darlington, the head of the Board of Public Health in New York City.

New York City's Water Supply.—Dr. Darlington said that the Croton water-shed, from which New York City obtains its water, contains altogether some three hundred and sixty square miles of territory. It is situated in Westchester and Putnam counties. Notwithstanding the chances for pollution that might exist in so large an area the diarrheal diseases in New York City have constantly grown less and less fatal since 1880. Typhoid fever has also been practically a decreasing quantity and an almost negligible factor in the death rate, certainly not due to the water supply. At the present time, however, there are dangers for New York's water supply greater than have existed before, and that make those responsible for the city's health tremble for the possible future of widespread infection through the drinking water.

Photographs of Possible Pollution.—Dr. Darlington then exhibited a series of stereoptic slides which show the possibility of pollution of the water supply. Near Mt. Kisco there is a small stream which runs along the railroad track, with all the possibilities of contamination which this presents, and on the other side are the back yards of houses, with privies not far from the stream. This stream empties into New York's water supply eventually. Another small stream is exhibited; showing cows crossing. There is a swamp not far from Mt. Kisco drained by a small stream, whose possibilities are serious to consider. Brewster's Station is over a small stream which eventually supplies New York with water. At Brewster the rear of some factories is just next the stream. Some distance away there is a barn on the edge of the stream; in another place there is a New York dwelling. These are only examples of the condition of affairs that exist in many places.

Responsibility for New York's Water Supply.—Unfortunately there is a very much divided responsi-

bility for the purity of New York's water supply. Eventually it may be said to rest upon certain local inspectors and upon the State Board of Health. The Health Department of New York City has not a mandatory position in the matter, though the health of over three millions of people depend upon the condition of the water in this region. The worst feature of the present situation is that those in charge of the sources of New York water, who should prevent its contamination, do not have to drink it.

New Laws That Hamper Further.—Every now and then a new law is passed that makes it even more difficult than before to be sure that New York will get good water. For instance, only last winter the law was passed allowing fishing and boating on the waters of any lake that New York might condemn for its water supply. Last winter, also, a law was passed forbidding that any land shall be condemned in Westchester or Putnam counties, so that if the city wants to prevent contamination it must go up as a private party and buy up the area required. It cannot secure the abatement of a nuisance except through the State Board of Health. The party may refuse to sell except at an exorbitant price.

Filtration.—The only remedy seems to be filtration. Typhoid fever and most diarrheal diseases can be absolutely done away with by this means. Philadelphia has eliminated typhoid in certain of its wards that used to suffer from it severely by supplying them with filtered water. Many foreign cities have wiped out the plagues completely. The price of land around the Croton water shed has advanced to such an extent that it is impossible now to obtain sufficient ground to protect the water supply amply. Land in the watershed used to be worth from twenty-five to one hundred dollars per acre. In many places now this advanced to one thousand and even three thousand dollars per acre. A farm that could be bought three years ago for \$15,000 sold for \$45,000 this year. It would cost seven hundred to eight hundred millions to buy up all the property necessary to protect New York's water supply for a long time.

Sources of Typhoid.—Dr. Ernest J. Lederle, the former Commissioner of Health of New York City, stated the sources of typhoid fever in about the order of their importance as follows: (1) milk, (2) shellfish, (3) uncooked vegetables, (4) imported cases, (5) secondary cases, (6) ice, (7) flies, (8) domestic water supplies, (9) public water supplies. With regard to the milk supply, New York City is ahead of any other city in caring for this, and, while there is no doubt that many cases occur from milk infection, the danger is ever growing less. Of shellfish, oysters are the most dangerous, because they are freshened in sewage-laden water. There are at present no statistics, however, which will determine how many cases of typhoid are due to this source. The uncooked vegetables are lettuce, tomatoes and the like, which can only be imperfectly cleaned before being put on the table. At times typhoid fever has been traced to the use of night-soil for the manuring of these. Dr. Prudden, of New York City, showed that the mere freezing of water did not kill the typhoid germ in it. As a result of his investigation a number of other investigations have been made, and now it is known that though the bacilli are not killed by freezing they gradually lose their vitality when kept in a frozen state for any considerable period.

New York's Typhoid Death Rate.—The mortality from typhoid fever in New York City is only 19 per

thousand deaths. Of 126 of the largest cities of the county only 20 show a death rate less than this. Only a few of the very large cities are among the better ones. Pittsburgh has 120 per thousand, Philadelphia 50 per thousand, Baltimore 35, Boston 26, Detroit 18. It is not so much then for the sake of preventing typhoid fever that new sources of water supply must be sought in New York City. As a matter of fact, New York in time of drought sadly needs more water. This can perhaps best be realized from the fact that at one time a few years ago New York was within thirty-six hours of the limit of her water supply—that is, the water stored was only sufficient to last another day and a half unless rain came. Fortunately rain did come, otherwise the evils of a water famine can scarcely be too vividly pictured.

Dissatisfaction in the Croton Watershed.—The recent legislation for the protection of the property owners of the Croton watershed is the result of the decreasing dissatisfaction with New York City's health and water boards in the past. Formerly the city had a right to condemn and did condemn. After condemnation it was not unusual for the former owners to have to wait six and seven years for their money. Not rarely it happened that the money paid for the property was scarcely more than the expense of condemnation proceedings. As a result, whenever an officer from the New York City's Board of Health appeared on the watershed he was looked at askance. New York City had the right to require the abatement of the nuisance. This would cost money, yet without bringing any return to those living on the watershed. The spirit necessary to protect the water supply was entirely absent. The appointment of a water commission for the purpose of securing new water supplies for New York City, but at the same time of managing, so that all the cities of the State, even the smaller ones, shall have their due opportunities to secure water was a pioneer movement in New York. It was initiated almost immediately by Pennsylvania. Other States are now following in New York's footsteps. The solution of the water problem would seem to lie in the hands of this commission.

Typhoid Fever and Further Resources.—Mr. Henry Hopkins Adams, whose picturesque articles, based on personal observation and written with striking vividness, which attracted so much attention in some of the magazines, next discussed the possibilities of typhoid infection, even beyond the ordinary sources discussed. Even if any one city succeeds in protecting itself, if other cities do not, the cases will surely be imported. Typhoid fever is a rural disease, and so long as it exists in the country it will surely be brought to the cities. The tendency is constantly cityward. Even if New York had an absolutely perfect water supply as regards typhoid fever its citizens would still want to go away for their summer vacation. Likely as not they would come back full of health, but also of bad water, the result would be typhoid. Or some of the small boys would go swimming in the sewage-laden Hudson, at One Hundred and Fifteenth Street, and acquire it there, or, perhaps, at Bath Beach.

The Utica Experience.—Utica has an excellent water supply as regards typhoid fever; Troy has not, but is trying to better itself. A number of Italian laborers were imported into Utica from Troy. They brought typhoid fever with them. The stalls were emptied into the privy vaults of a portion of Utica, and here the flies got to them and proceeded to dis-

tribute them. Some of the distribution was carried to neighboring dairies, and before long typhoid fever began to develop along the milk routes supplied from these dairies. After a time the cases of typhoid fever discharged their secretions, which were carried through the sewers into the Mohawk and then eventually to Schenectady and finally back to Troy, completing the vicious circle.

Public Opinion and Typhoid Fever.—Prof. Victor C. Vaughan, of Ann Arbor, once said that whenever a person dies of typhoid fever someone should be hanged. If public opinion were molded more on this basis there would be less of typhoid fever. If the public conscience were aroused sufficiently to prevent contamination, then the disease would disappear. As it is there it too little sense of personal responsibility in this matter. The public do not realize that they may be permitting homicide. "If I put arsenic into my neighbor's soup, Jerome will get me, but I may poison the whole town of Butler, Pa., by means of typhoid germs without any serious results."

Justice and the Ironwood Story.—It is surprising that more is not known generally of the Ironwood experience with typhoid fever. Ironwood is a mining town in Michigan. Suddenly a large number of persons fell sick. The onset was so severe that there was some doubt whether it was typhoid fever. The water supply was blamed, but the superintendent of the waterworks blatantly proclaimed through the public streets that it was not the water supply that was at fault. Prof. Vaughan, of Ann Arbor, was sent for. He took samples of the water and also of the slime at the bottom of the reservoir. He agreed to telegraph the results as soon as they were found. Two days later his telegram was read in Public Square amid the hushed silence of nearly the whole male population. He said that the water was little better than liquid poison. Without any more ado and without any special pre-arrangement the crowd went over to the other side of the river in the little town, found the superintendent of the water company in a house of not very savory reputation and quietly took him out and hanged him.

Mr. Hopkins would not advise lynching for these cases of typhoid deaths, but the sense of justice of the mob is truer than that of civilized communities. At Ithaca, when there was a question of prosecuting the directors of the water company it was said that they were men of high character; as if a man's character should be the commentary on his acts, rather than his acts a commentary on the man. Popular education is needed, so that the ordinary citizen shall learn that it is cheaper to pay taxes and spend money for health than pay doctors', druggists' and undertakers' bills.

Protection of the Milk Supply.—Dr. Walter Bense, of New York, said that New York receives 1,500,000 quarts of milk per day. Of this, 200,000 quarts is obtained within the city and the city's milk inspectors may properly regulate its sources. Outside of the cities, however, this was impossible, until very recently. Two years ago two of New York City's milk inspectors were appointed on the staff of the State Board of Health. This enabled them to investigate all the sources of milk supplied for the city and correct many evils. Dr. Bense showed, by photographs, how a dairy, with cement floor and gutter that can be thoroughly washed out, may be eminently sanitary. He then showed, by contrast, some of the small dairies with connections of manure and rubbish all around them with cobwebs on the ceiling

and all sorts of opportunities for dust contamination, with only wooden floors and gutters that fail to carry off material, conditions which have gradually been corrected as the result of New York inspectors' insistence. All cows are milked inside, hence the possibilities of infection by dust. The pictures showed the conditions very well he said, but could not reproduce the odors.

SYMPOSIUM ON THE TOXEMIA OF PREGNANCY.

The afternoon session was entirely taken up with the discussion of the modern aspects of pernicious vomiting, eclampsia and yellow atrophy of the liver, their relation to one another and to the presence of some toxic element in the blood.

Acid Toxemia of Pregnancy.—Dr. Henry McMahon Painter, of New York City, said that there were great differences between the symptoms which patients suffer from as a consequence of acid toxemia. Some patients had only a slight nausea without vomiting or headache. Others had considerable headache with the nausea and some had but slight vomiting. From these to the cases in which there were extreme symptoms of almost insufferable headache and persistent vomiting there were many varieties. The symptoms are more likely to occur during the early months of pregnancy. In multiparae the vomiting may be so slight or so little noticed as scarcely to seem abnormal. Many patients are quite despondent, yet brighten up and become vivacious for a physician. Some sleep well all night and have their sufferings during the day. There are often neurotic symptoms present.

Suspicious Symptoms.—At first the pulse is likely to be only slightly disturbed, but after a time it may run very high. Giddiness of a severe character is not infrequently seen. These patients may wake up at night with the sensation of burning in bed. Unusually there is a small amount of urine, and the specific gravity is often high. The general rule is to have only a trace of albumin. The amount of solids passed in the urine are not as high as is usually said, even in healthy women. The text-books say 25 to 30 grams a day for male or female. It is not rare to find only 15 to 18 grams, with no disturbance of the general health. Leucin and tyrosin may be found in the urine, but they are rare and indicate intestinal indigestion.

Prophylaxis.—The most important part of the treatment is to prevent the development of acid toxemia to such a degree as will cause convulsions. The urine should be examined as often as once in ten days in suspected patients. Many of these toxemias begin as intestinal intoxications. The bowels must be kept regular, therefore, and great benefit can be derived from the free use of water. A quart and a pint of water should be taken daily, and careful questioning will often show what a surprisingly small amount of water the patients usually take. Women generally do not drink enough water. Drugs are not of much use, but the Swedish exercises and rubbings will be found of service, and there is no danger of terminating pregnancy. Indican in the urine is the best sign of intestinal intoxication, and it is rather easy to learn the test for it. Many a neurasthenic would be saved from the severer condition if this were recognized and the intestinal condition improved at the beginning.

Pathology of Eclampsia.—Dr. James Ewing, of New York City, said that for him, as is well known from previous papers, the three conditions of pemi-

cious vomiting, eclampsia and acute yellow atrophy of the liver rest on essentially the same basis. He then demonstrated this by means of lantern slides, showing the forms of lesions that occur in these conditions. Hemorrhagic hepatitis is not an infrequent beginning, and then there are necrotic and fatty degenerate changes, which give characteristic details to the microscope pictures of more advanced stages.

Cause of Condition.—The cause of these conditions seems to be a failure of oxidation in the system. This can be determined by studying the nitrogen partition in the urine and observing that the nitrogen passed is not in the shape of urea, but various precedents of this substance, the most prominent among these are ammonia and amide substances. In order to determine this change in the urine, a twenty-four-hour specimen must be obtained, and it must be known what the patient has eaten. On a full diet there will be 85 per cent. of urea nitrogen in a normal individual. On a low diet, such as is not infrequently the case in pregnant women, because of the tendency to nausea, the urea nitrogen may not amount to more than 60 per cent. This must be taken into account in making the urinary examination, and there is no absolute proportion between the changes found in the urine and the extent of the pathological lesions and the clinical symptoms. Leucin and tyrosin are the best indices. They are not always present in these cases in the urine, but are usually found.

Pernicious Vomiting of Pregnancy.—Dr. Wm. S. Stone, of New York, said that for the milder cases of pernicious vomiting the usual remedies must be tried. The intestinal tract should be thoroughly cleansed, and large injections of water may be given and the stomach washed out. If the vomiting persists, however, it takes on the pernicious form, and then the only thing that will end it is the determination of the pregnancy. For this the rapid dilatation of the cervix and the emptying of the uterus has been the most advised means, but there are beginning to be doubts about its applicability in some of the severest cases where the symptoms have affected the general health very much. The shock of the operation may of itself kill the patient. The administration of an anesthetic adds to the danger, and if chloroform is given the toxic process within the body seems to be intensified. All the portions of the fetus and its adnexa must be removed or the vomiting will continue. Dr. Stone has had a case in which a small portion of placenta was left with failure to relieve symptom. When this was removed the vomiting stopped.

Gradual Dilatation.—Dr. Stone thinks that laminaria tents may again come into use for the gradual dilatation of the cervix in these cases. In Germany they are being used much more than a while ago. They have been discarded by the best men in this country, but it would seem that some of the faults that were attributed to their use might rather have been due to the imperfect aseptic technic of former days. Now it is easy to secure absolute asepsis.

Treatment of Eclampsia.—Dr. Bernard Cohen, of Buffalo, N. Y., said that while eclampsia is sometimes said to develop suddenly and without premonitory symptoms, often these premonitory symptoms will be found to have occurred when careful investigation is made. Women must be taught early in pregnancy to consult a physician and not to let suspicious symptoms pass by unheeded. The most important element is prophylaxis. Women must be

taught to be careful about their diet. It is surprising what articles will sometimes be found in the pregnant woman's diet. Veal and pork and all alcoholic substances must be forbidden. Whenever a headache persists, or whenever there are any swellings or puffiness of any part of the body, the doctor must be consulted. The physician himself must pay attention not to the kidneys alone, but to all the organs. Nature must have a free vent, and there must be thorough elimination. Calomel is an excellent drug occasionally, the frequent drinking of water must be advised, alkali water must be taken freely, massage is a good remedy.

Treatment After Convulsions.—Once a convulsion has taken place the question must be whether there shall be evacuation of the uterus or not. In the meantime put a roll of bandage between the teeth, give two drops of croton oil on a teaspoonful of olive oil and use morphine plentifully. Chloral and bromide may be given by the rectum. Normal saline solution by the rectum will increase diuresis and diaphoresis. Chloroform, if given at all, should be only for the moment, until the morphine acts. Of course, the most important element in the evacuation of the uterus is the securing of thorough asepsis.

Vaginal Cæsarean Section in Eclampsia.—Dr. M. Stamm, of Fremont, Ohio, said that this method of operating for these serious cases, exploited recently by Dührssen, deserves the attention of the profession all over the world. It may be employed at any time when there is need of promptly emptying the uterus, when the mother is suffering from diseases of the heart and lungs, that threaten her life, or when uterus is pouched or is confined in the hollow of the sacrum or abnormal conditions for delivery exist because of the presence of tumors of the cervix. It must, of course, only be employed where the mother's life is in danger without it. It has been objected that the word Cæsarean section cannot properly be employed of an operation in the vagina, since it was originally used for an opening of the abdomen. Long ago, however, Pliny pointed out that the derivation of the word was from *Cæsa*, meaning cut, and not from the supposed birth of Julius Cæsar in this way. If it is employed of the abdomen, it may be employed also of the vaginal vault.

Technic of the Operation.—The bladder and the rectum must be emptied, then the interior section is made directly in the medium line separating the bladder from the uterus. After this the posterior lip of the cervix is cut through into the cul-de-sac. The layer of the peritoneum between the bladder and rectum is then pushed up. When the incisions are made strictly in the medium line there is not much bleeding. The time required for delivery is about six minutes, and the operation may be finished in from twenty-five to thirty minutes. There is less danger than in the ventral Cæsarean section. It is easier to obtain the consent of the patient and friends, and it will be obtained sooner. The operation should be done in a hospital, but has been done successfully in a private house. Dr. Stamm himself has done it once in a private house. Over a score of cases have been done in the last three years. The operation has come to stay. It must not be done where the conjugata is less than 7 cm., nor where there is a tumor of the pelvis.

In opening the discussion, Dr. J. Whitridge Williams, of Baltimore, said there is no doubt that there

are lesions absolutely typical of eclampsia, so that now, without knowing anything of the clinical history, the pathological specimens are sufficient to enable the investigator to say that the patient has died of eclampsia. Instead of one toxemia of pregnancy, there are probably three at least. There is one for eclampsia, another for pregnancy vomiting, the third for acute yellow atrophy. There are three varieties of eclampsia as seen clinically. One of these is due to some genital reflex and will be relieved by the removal of this. A second is neurotic and the third is toxic. In the neurotic type nothing will be found in the genitalia, nothing in the urine, and the patient will be cured in twenty-four or forty-eight hours by suggestion under proper conditions. When the type is toxic, the twenty-four-hour urine should be examined for several days. As the ammonia nitrogen arises in the urine toxic eclampsia becomes more threatening. Eclampsia differs from acute yellow atrophy by its lesions in the liver, since one has its pathological essence in the center of the lobule, the other at the periphery. One is thrombotic, the other is necrotic.

Vaginal Cæsarean Section.—Dr. Williams believes that as a result of the recommendation of vaginal Cæsarian section untold harm will be done. There will be an immense number of vaginal Cæsarian sections made and reported where there is no need for them. It has its proper indications, but out of twenty cases of eclampsia seen at Johns Hopkins during the last two years only one was judged favorable for the operation, though Dr. Williams has been looking for an opportunity.

Eclampsia and Vomiting of Pregnancy.—Dr. J. Clifton Edgar, of New York City, said that these two affections seemed to him to be the same. There is no clinical index or laboratory test that will give proper warning as to impending eclampsia. Not much is known about the toxemia of the blood. Both seem to be due to faulty hepatic metabolism. The nitrogen partition in the urine is disturbed, but this is not always proportionate to the severity of the clinical symptoms. Clinical diagnosis is impossible, and it is dangerous to say that it is possible. Physicians were taught to rely on the urea index only six years ago, and now are likely to be deceived by this nitrogen partition test. The kidney does not always stand for so much in eclampsia. Two-ounce or four-ounce specimens of urine do not tell much. The diet must be known, and an examination made of twenty-four-hour specimens.

(To be Continued.)

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, held at Indianapolis, Ind., October 10, 11 and 12, 1905.

(Continued from Page 813.)

Irritation of the Bladder.—Dr. A. Ravogli, of Cincinnati, Ohio, said that in many abnormal conditions of the genito-urinary organs and also of the urine itself this affection came on as a symptom in the form of the necessity of frequent micturition. This symptom could be produced by a number of intravesical and extravesical affections. In this condition the urination was so increased that it seemed the bladder could not tolerate the presence of urine. In some cases it occurred in the daytime only, in other cases at night, and in severe cases often in the day as well as in the night. The intervals be-

tween urination might be two hours, but in some cases the patient urinated every quarter of an hour, or even every five minutes. The patient would lose sleep, waste away, and was scarcely able to attend to his occupation. In reference to the causes, the urine might be the cause of irritation on account of its quantity or its quality. It might be too concentrated, contain urates, phosphates, sugar, etc., which maintained or kept up irritation of the bladder. The bladder itself might be the cause on account of an hyperemic condition. This hyperemia might be the result of vesical and of extravesical troubles, phimosis, urethritis, prostatitis, neoplasms, pericystitis, vulvitis, nephrolithiasis, etc. In other cases it was a pure neurosis, the consequence of epilepsy, hysteria, eclampsia. Since the urethroscope and the cystoscope had been used, cases of irritation of the bladder without pathological condition had greatly diminished, and in most of them there had been found either granulations or hyperemia of the mucous membrane. There were two kinds of irritation of the bladder, one which was a local neurosis, and another which resulted from pathological alterations of the bladder or of the urethra. The affection was a stubborn one, but the detection of the causes would help greatly in the selection of appropriate treatment.

Prostatectomy.—Dr. W. D. Haines, of Cincinnati, Ohio, said that two patients, aged respectively forty-two and fifty-nine years, with small indurated prostate with obstruction, occurring in his practice, did well after perineal section and the removal of the gland, in that the catheter was abandoned and a troublesome cystitis relieved. One of the cases suffered incontinence for a period of three months after operation, and the cure was incomplete, as residual urine was found in both cases, and this despite easy bladder access by the sound or catheter. The author condemned the use of metallic instruments in prostatics for diagnostic purposes, or for the relief of urinary retention, as the danger of perforation and infection far outweighed the meager information or temporary relief thus obtained. One could confidently hope for complete cure in 30 per cent. of the patients submitted to prostatectomy, namely, release from catheter bondage, relief from bladder complications and restoration of urinary function. In his experience with perineal prostatectomy seven patients had been functionally cured, nine showed residual urine, some of whom had had attacks of cystitis and dribbling, and five of these were suffering from incontinence six months to one year and a half after operation. Two patients required secondary operation, one for stone, and one for perineal fistula, making a total of sixteen patients, with ages ranging from forty-two to seventy-nine years, without mortality. While these results were far from ideal, the unfavorable physical condition present in the majority of them would in a measure militate against criticism as to the final outcome of this series.

The Operative Treatment of Tuberculous Joints.—Dr. Horace J. Whitacre, of Cincinnati, Ohio, advocated four kinds of operations for tuberculous joint disease: (1) Osteotomy for the removal of an epiphyseal focus; (2) erosion or arthrectomy of those cases, particularly in the young, where the focus was circumscribed and a fair amount of synovial membrane remained; (3) excision; (4) amputation. Osteotomy for the removal of a focus localized in the epiphyseal end of a bone was a

most logical operation. Six cases of rather extensive tuberculosis of the knee were treated by arthrectomy or erosion. In four of these cases a complete cure of the disease with a useful stiff joint and good position was attained. In three of the cases a slight amount of motion giving some assistance to the patient in locomotion was regained. In two cases amputation was subsequently resorted to. These subsequent amputations occurred in patients who passed from his observation very soon after operation. They undoubtedly represented recurrence in a spot where the dissection had not been sufficiently thorough. Excision for a tuberculous joint had been reserved in his practice for those cases in which the bone ends were seriously damaged.

Presidential Address.—The President, Dr. Bransford Lewis, in his address, considered two subjects: (1) Some unrecognized responsibilities of press and State in conserving health; and (2) the prophylaxis of the so-called venereal diseases. He called attention to quack medical advertising in newspapers and magazines, and said that news managers provided against discrimination frequently by making unworthy advertisements resemble as closely as possible the regular news material of the paper, or by setting it up as telegraphic matter. He thought the press was *particeps criminis* in presenting such fraudulent material. There was a widely disseminated and growing belief that matters pertaining to sexual physiology and pathology should be taught in a simple way to the budding youth of both sexes in the course of their regular education, in order to place them in a position to resist the temptations that beset young life, by the clearer understanding that such instruction would afford. He would make use of the educational channels of all sorts to spread the information desired in a scientific, dignified, truthful and wholesome manner, and such instruction would be received in the spirit in which it was imparted. It was primarily to the education of the people to which we must look for providing either the required legislation or the belated impulse for self-respect and decency on the part of the newspapers in eliminating quack advertisements. Another subject which he considered well worthy of attention was the determination of practical methods of protecting the people from the far-reaching and disastrous effects of those diseases generally termed venereal, but which were not uncommonly entirely innocent in their development. He referred to gonorrhea, syphilis and chancroid. These diseases prevailed to an extent undreamed of by the people and those in control of the public health of our country. He believed nothing was to be accomplished by prolonging a discussion as to the propriety of legal control and regulation of prostitution. Instead of trying to do what was impossible, to corral and disinfect all prostitutes, he would teach the public the dangers of prostitution, the dangers of the diseases to which it led, the prevalence of such diseases in daily life, and how they were acquired innocently, how they were to be avoided, and the necessity of seeking relief from them as soon as possible when they were acquired. The campaign of education must be the chief reliance, and the medical profession, followed by the ministry, instructors of institutions of learning in general, philanthropists and leaders in public work would have to be counted on as the purveyors of such education.

The Present Status of the Surgery of the Stomach.

—This was the title of the Address in Surgery, which was delivered by Dr. W. D. Haggard, of Nashville, Tenn. A discussion relative to operation for stomach lesions now was similar to that in regard to appendicitis twelve or fifteen years ago. Then only the desperate cases were submitted to operation. It was so now with many stomach cases. This, however, must yield to the logic of results and in a short time the profession generally would advise early operation, as they now well-nigh universally did in appendicitis. Improved technic, low mortality and satisfactory end results would inevitably do away with the empirical treatment of occult intractable stomach troubles. The typical indication for operative interference was obstruction of the pylorus from an open or cicatrized ulcer causing dilation of the stomach, with stasis of food. The short circuiting operation of gastroenteric anastomosis found its ideal indication here, and had given the most beneficial results. It was the *fons et origo* of the present group of drainage operations, as well as other gastric procedures, and was altogether the most perfected satisfactorily employed operative device. The other complications of ulcer requiring operation were pointed out as (1) perforation; (2) hematemesis of chronic ulcer. Operation was advised in repeated acute hemorrhage or in constantly recurring small hemorrhages. Other indications were found in the following groups of cases: (3) Obscure and persistent stomach symptoms with a long history of dyspepsia culminating in hemorrhage, after it had been controlled by medical means and the patient put in the proper condition for operation. (4) Cases of chronic intractable dyspepsia, even without dilatation, which failed to yield to proper medical treatment and were not due to a general visceral ptosis. The author gave a synopsis of the other stomach conditions for which operation was recommended. Aside from malignancy, chronic ulcer and its complications furnished most of the indications and the majority of cases. It was not impossible that the bulk of cases of inveterate dyspepsia was really due to ulcer. That it was found post-mortem so very many more times than it was recognized clinically was a reproach not so much to diagnostic measures as to failure to properly apply them. Dr. Haggard quoted Moynihan as saying that he did not know any operation in surgery which was more successful or which was attended by better or more striking results than gastro-enterostomy for chronic ulcer of the stomach. It was in duodenal or pyloric obstruction that gastro-enterostomy found its most striking indication and attained its highest efficiency. The many various methods for performing gastro-enterostomy gave a feeling of wonder at the ingenuity displayed. The relative safety of the operation even by varying technic was illustrated by Robson's results, namely, over 200 cases with a mortality of 3.6 per cent. The posterior operation had largely supplanted the anterior, because of the avoidance of the loop around the transverse colon and the mischief it caused. The anterior operation was reserved for malignancy, where the speediest technic was the best, where the stomach could not or should not be delivered freely and the operation was palliative in its intent. The Murphy button could be employed in gastric and intestinal surgery on account of its rapid insertion; while the McGraw elastic ligature found its best scope in such cases if an immediate opening was not

ready to marry as in the past. Not only, however, is marriage delayed, but the marriage rate is lower in proportion to population than it has ever been. The last few years have seen the publication of a number of books with regard to marriage and disease, and more of them are announced. Most of them are not of a character to encourage matrimony either early or late in life, and this present text-book, the contributors to which are some of the most distinguished specialists in Germany, might almost be said to fulfil the famous advice of *Punch* to the man about to marry, "Don't." Among the contributors are Dr. Neisser, of Breslau; Drs. Hoffa, Posner, Eulenberg, Mendel and Moll, of Berlin.

Those who consider that the ordinary medical pictures presented in recent years with regard to the evil effects of gonorrhea upon marriage are overdrawn, should read the chapters, nearly a hundred pages in all, provided in the present work, on this subject by Prof. Neisser. Nothing is left to be added after his complete treatment of the subject.

Prof. Mendel, of Berlin, contributes some forty pages on the subject of insanity in relation to marriage. There is a very full discussion of the vexed problems of medico-professional secrecy in relation to marriage, and the discussion of such subjects as perverse sexual sensations, and alcoholism and morphinism in relation to the marriage state. Indeed, there seems to be no medical detail of the marriage relation that does not find very full treatment in the work. It has the advantage for English readers of being founded upon German jurisprudence, which allows divorce much more easily and readily than any of our States, except a few of the most lax in this respect. There is room and reason for annotations by an American editor acquainted with the divorce laws in this country.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDER OF METABOLISM AND NUTRITION. By Prof. Dr. CARL VON NOORDEN, Physician-in-Chief in the City Hospital, Frankfurt-a-M. Authorized American Edition translated under the direction of Boardman Reed, M.D. Part VI. Drink Restriction (thirst cures), particularly in Obesity, by Prof. Carl Von Noorden and Dr. Hugo Salomon. E. B. Treat & Co., New York.

ALL of this series of little volumes are of extreme practical value, and the present volume yields to none of them in interest. For a considerable period it has been the custom to think that a restriction of fluids will bring about a reduction of obesity. The theories advanced to support the clinical observations in this matter, however, were not satisfactory. There is presented here an excellent discussion of the whole subject, besides a number of valuable suggestions as to the application of this method of treatment. Perhaps the subject will seem drawn out to the practitioner of medicine, but as yet some of the points are not definitely settled, and consequently a whole discussion of all observation is needed in order to decide their significance.

THE CRUX OF PASTORAL MEDICINE. The Perils of Embryonic Man; Abortion, Craniotomy and the Cæsarean Section; Myoma and the Porro Section. By ANDREW KLARMANN. Fr. Pustet & Co., New York and Cincinnati.

THIS volume is meant to be a manual of direction for the obstetrician with regard to the moral principles that are binding when there is question of a serious obstetrical operation which may imperil the life of the mother and child, or of both. Rev. Mr. Klarmann states very

distinctly how the principles that have been determined by the Catholic Church apply in many emergencies and trying situations. The book is very complete and, unlike many of the treatises on this subject, very direct and without any tendency to shirk the real difficulties at issue in every case. The author is, however, a rigorist, in the sense that he applies broad principles without sufficient allowance for human weaknesses. We are of the opinion that there are not many who would be as absolute as he in putting the mother's life in jeopardy where there is practically no chance of saving the life of the child. The whole subject is in many of its important points as yet *sub judice*.

PROGRESSIVE MEDICINE. 1905. Vol. III. September. Edited by H. A. HARE, M.D., assisted by H. R. M. LANDIS, M.D. Lea Brothers & Company, New York and Philadelphia.

THIS, the last issue of *Progressive Medicine*, contains summaries of the literature on Diseases of the Thorax and the Viscera, including the heart, lungs and blood vessels, by William Ewart; Dermatology and Syphilis, by William Gottheil; Diseases of the Nervous System, by William G. Spiller; and Obstetrics, by Richard C. Norris.

It differs in no essential respect from the previous summaries of former years. Like them, it is a reliable index of progress of medicine—an invaluable book to have for reference for the physician isolated from the great libraries.

FIRST ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE FOR THE STUDY, TREATMENT AND PREVENTION OF TUBERCULOSIS, February 1, 1903, to February 1, 1904. Henry Phipps Institute, Philadelphia.

DURING this year 254 patients were treated in the hospital, and nearly 1,800 in the dispensary. The work is now well-organized, the staff is large enough to permit careful history-taking and searching physical examinations, and the pathological department is ably supplementing the work of the clinicians. This first report, besides the details of work in the institution, includes "A Statistical Study of Tuberculosis in Philadelphia;" "Tuberculosis Work at Saranac," by E. L. Trudeau; "The Home in Its Relation to the Tuberculosis Problem," by William Osler; "The Morbid Anatomy and Histology of Pulmonary Tuberculosis," by G. Sims Woodhead; "Specific Therapy of Tuberculosis and Vaccination against the Disease," by Edward Maragliano, and "The Administrative Control of Tuberculosis," by Hermann M. Biggs, all these being lectures delivered under the auspices of the Institute.

BOOKS RECEIVED.

A MANUAL OF PRACTICAL HYGIENE. By Dr. C. Harrington. Third edition. 8vo, 793 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

THE PLAGUE; BACTERIOLOGY, MORBID ANATOMY AND HISTOPATHOLOGY. By Dr. Maximilian Herzog. 8vo, 149 pages. Illustrated. Bureau of Public Printing, Manila.

SYSTEM OF PHYSIOLOGIC THERAPEUTICS. By Dr. Solomon Solis-Cohen. Volume XI. Serumtherapy, organotherapy, radioactivity, with index. 8vo, 390 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

HEALTH AND DISEASE IN RELATION TO MARRIAGE AND THE MARRIAGE STATE. Edited by Prof. H. Senator and Dr. S. Kaminer. Translated by Dr. J. Dulberg. Volume II. 8vo, 1,257 pages. The Rebman Co., New York and London.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, NOVEMBER 4, 1905.

No. 19.

ORIGINAL ARTICLES.

THE TREATMENT OF GENERAL PERITONITIS.¹

BY ANDREW J. MC COSH, M.D.,
OF NEW YORK.

IN their treatment of general septic peritonitis, surgeons are not by any means agreed as to many important points. There is at present as much difference of opinion on this subject as was the case ten years ago. This difference of opinion and practice prevails not only concerning the details of operation, but also concerning the general principles of treatment. In recent years this divergence of view has been in part caused by our better knowledge and appreciation of the ability of the peritoneum to absorb and destroy the poison generated by bacteria. We are now aware that a considerable amount of poison and exudate can be readily disposed of by this membrane. Hence has come a tendency on the part of some surgeons to be less confident of the invariable necessity for operation, or at least to be less energetic and painstaking in the toilette of the infected peritoneal cavity.

There should, however, be no one rule of treatment. It should vary according to the etiology, duration and virulence of the disease, and also according to the resisting power of the patient. The wisdom of the surgeon will be shown in the proper selection of the principle and methods of treatment. Certain hopeless cases will be encountered where euthanasia is the only treatment indicated. In other cases operation is demanded, and in yet others the surgeon may be at a loss to decide which plan will offer the best chance for recovery.

The etiology of the case influences the prognosis, as well as the means of treatment. The immediate shock which results from the escape of poisonous fluids into the peritoneal cavity through rupture or perforation of a viscus, does not now concern us, neither does the propriety of immediate operation for its relief. Peritonitis, however, rapidly follows. At first this may not be of a very virulent type, but it is continuously fed and aggravated by the poisonous outflow, until the leakage is stopped. On the other hand the poison which escapes from a leaking vermiform appendix is more virulent, but its amount is smaller and its wider distribution may be blocked by adhesions of neighboring organs. The rupture of a pyosalpinx is apt to cause a milder grade of peritonitis than that which follows the escape of intestinal contents. Leakage from the inflamed or gangrenous gall-bladder, if not blocked by adhesions, is apt to produce a severe grade of perito-

nit. In the case of a perforation of a hollow viscus, where absence of adhesions permits of the outpouring of large amounts of toxic fluids, there is but one appropriate treatment. Immediate operation is demanded. As examples may be mentioned gastric, duodenal and typhoid perforations, or those due to a foreign body from the intestine or the gall-bladder. Similar treatment is indicated for peritonitis due to strangulation of intestines, whatever be the cause. In all these cases immediate and rapidly conducted operation for removal of the cause with appropriate treatment for the peritoneal inflammation, is indicated. The vast majority of cases of general septic peritonitis, however, are due to appendicitis, and it is especially to this form of the disease that the following remarks will apply.

The resistance of the patient has naturally a marked influence on the prognosis, as it should on the treatment. In this connection age is a factor of great importance. In a young boy or girl the most hopeless looking case will not infrequently recover, and this in spite of the particular method of treatment. The elderly individual, especially if his liver, kidneys and heart have been subjected to years of dissipation, will but rarely recover. My own methods of treatment are distinctly influenced by these considerations, and the larger my experience the more I am convinced of their reliability.

The prognosis will largely depend on the degree of septic intoxication present, whether this be due to the virulence or duration of the poison, or to the feeble resisting power of the patient. On this also should be mainly based our plan of treatment, and, as has already been stated, this should vary according to the conditions which we encounter. No one plan is suitable for all cases.

One of the most important and burning surgical problems of the day concerns the propriety of operation upon all (except moribund) cases of general septic peritonitis. Shall operation be the universal rule, or shall it be employed in selected cases only, or shall it be practically rejected? These are the three most important questions for our discussion. It may be fairly stated that the majority of surgeons favor an affirmative answer to the first of these questions, and, as a rule, recommend immediate operation. A fair minority would perhaps agree to the second proposal and select according to their judgment certain cases for immediate operation and others for non-operation or at least delayed operation. A small minority, including, however, some able and experienced surgeons, would rather agree to the third proposal and reject immediate operation in

¹ Read at the First Congress of the International Surgical Society, Brussels, September 26, 1905, to introduce the subject of Peritonitis.

practically all cases. It is mere waste of time to discuss the views of a few surgeons, who teach that these cases are practically hopeless whatever may be the treatment. For further elucidation it may be convenient to divide these cases into two categories.

1. Patients in desperate or moribund condition. The pulse is small and feeble, generally very rapid, 130-140; the facies have a most distressed and anxious appearance; vomiting is almost constant. The abdomen is enormously distended and hard as a blown-up football; respiration is rapid, distressing and shallow; the extremities are bluish; often there is a semi-gangrenous odor emanating from the patient's body. The mind, even in the most desperate of these cases, is often clear, and the eyes bright. The prognosis in this class of patients is practically hopeless; death will end their sufferings within twenty-four hours; operation is contraindicated. It will but hasten the fatal result, and is apt to bring discredit upon surgery.

2. The patients are critically ill, but not moribund. The heart's action is feeble and generally very rapid, but the circulation is not yet hopelessly impaired. Vomiting is frequent, and the abdomen is markedly distended and hard, but is not of the football variety. Respiration is less distressing, and the appearance of the patient is less critical. In this class of cases the majority of surgeons favor immediate operation. They claim that without operative interference such cases are almost invariably hopeless, while if operated upon, the percentage of recoveries will be from 30 per cent. to 60 per cent. or even 80 per cent. On the other hand, certain surgeons claim that the chances for recovery are better if the operation be postponed. These men maintain that their mortality since the practice of immediate operation has been abandoned, has been distinctly reduced, indeed, as much as 50 per cent.

A few years ago I belonged to the first of these classes, and no one was more urgent than myself in advising immediate operation in practically all cases. In recent years I have been gradually questioning the advisability of this plan of procedure, and I now, especially since the teachings of Ochsner, class myself with those surgeons who would carefully choose operation for certain cases and reject it for others. Within the past few years, I have often been agreeably surprised to see patients whom formerly I would have thought could only be saved by immediate operation, pass through the critical stage of the disease, when treated by absolute starvation, gastric lavage, etc. I have not, however, reached the position where I recommend non-operative treatment even in the majority of cases, but I firmly believe that we should carefully consider in every case, whether operation will give the patient the best chance for recovery. Of course, in cases of perforated stomach or intestine or strangulated bowel, immediate operation is but rarely contraindicated. When, however, the peri-

tonitis is due to appendicitis, I am convinced that it is wiser not to follow any general rule of treatment, whether it be to operate or not to operate. The chances of recovery for elderly patients, especially if they have led dissipated lives, are, I believe, diminished if they be subjected to operation. The best treatment for these cases consists, I think, in absolute starvation, gastric lavage and small saline enemata, followed at a later date, if possible and necessary, by operation for a localized suppurative peritonitis. On the other hand, youthful patients, I believe, should, as a rule, be subjected to immediate operation. In the class that are neither young or elderly the surgeon must be guided in his treatment by the special features of each case. I must confess that, at the present time, I am often in doubt in this class of patients, which plan of treatment to recommend.

I feel sure that these remarks concerning the doubtful propriety of operation in certain cases will be adversely criticised by many of you. It will be said, how is it possible for such patients to recover without operation, when we know that the intestines throughout are deeply injected, distended and paralyzed, and when everywhere in the peritoneal cavity is found turbid serum or pus? I can only say that my experience in dozens of such cases has shown that without operation a fair proportion have fully passed through the critical stage of their peritonitis, to a condition where there remains but a localized abscess, in the midst of which lies a gangrenous appendix. At the end of a few days this is opened and the appendix removed by a comparatively simple operation. Sometimes indeed the case progresses to complete or, at least, temporary recovery, without even the formation of an abscess. Such is the remarkable power of the peritoneum for absorption and destruction of septic poison and inflammatory exudate. By some of you, I feel sure, it will be said that the diagnosis in these cases has been erroneous, and that the peritonitis has not been *general*. I cannot agree to this, for in an hospital experience of seventeen years I have operated on about 250 cases of general septic peritonitis, and certainly should be able correctly to diagnose this condition. I am willing to grant that in perhaps 10 or 15 per cent. of the cases my diagnosis may have been wrong, but certainly in the other 85 or 90 per cent. the experienced surgeon should not fail to rightly estimate the extent of the peritoneal sepsis and inflammation.

I do not wish to be understood as opposing operation, but simply wish to emphasize the fact that it is not always the best treatment. To illustrate my present treatment of general peritonitis, I may state that ten years ago I was in the habit of operating on perhaps 80 or 90 per cent. of all cases encountered. Now I operate on only about 50 per cent.

In these operations many different procedures have been employed. Some of these are discussed

more fully later in this article. Many, such as the use of antiseptic solutions for irrigation, etc., have been abandoned as injurious.

The most important features of operation for general peritonitis are in my opinion: (1) Rapidity; (2) gentleness; (3) removal of the cause; (4) postoperative elevation of the trunk and head, with corresponding depression of the pelvis.

OPERATION.

Anesthesia.—General anesthesia, as a rule, is preferable to any method of local anesthesia. There are exceptional cases where the latter may be indicated. Chloroform is frequently to be preferred to ether, though a mixture on an open mask is often the most advantageous.

Incision.—As a rule, when the cause is known, this should be made over the spot where lies the exciting lesion. As this is apt to be the appendix vermiformis, the incision will be made in the right inguinal region. In cases of doubt a median incision is best. Wherever situated, a length of 8 to 10 cm. is generally sufficient. If not, the incision can be extended during the progress of the operation. An incision of from 12 to 20 cm. does not seem to me to offer any advantages, and if recovery follows, is apt to result in discomfort to the patient.

As a rule an intermuscular incision is not advisable, though in lax abdomens either the McBurney or Kämmerer is sometimes sufficient. The incision along the outer edge of the right rectus muscle is generally the most convenient. When the peritoneal cavity is opened, fluid escapes. This may be under pressure, and squirt out with some force, but generally this means that the peritonitis is more or less localized. The character of the fluid may be turbid serum or thin pus. If the pus be thick, it is apt to mean a peritonitis which is not entirely general. The amount of fluid varies. There may be but little, or there may be a liter or more. The cause of the peritonitis is immediately sought and brought into view. At the same time it is determined whether or not the peritonitis be general. If general, irrigation through a tube is at once begun. Normal salt solution at a temperature of 110° F. is employed, through a hose of good size, and with considerable force. The rubber hose itself may be inserted, or there may be attached a long glass irrigating tube (in America, known as Chamberlain's tube) or a double current glass tube, for ingress and egress of the fluid. The irrigation is begun in the flanks and systematically carried to different parts of the abdominal cavity, terminating with a thorough washing out of the pelvis.

This in itself, consumes but little extra time, as it continues during the other steps of the operation, and terminates only with the insertion of the sutures. The hand of the operator, covered invariably by a rubber glove, helps, by gentle manipulation, the washing process. If the intestines have emerged from the abdominal cavity, they are carefully protected by hot towels, and flooded

with hot saline solution. Generally, into the upper part of the small intestine there is injected through a large hypodermic needle 30 gm. of a saturated solution of magnesium sulphate, the puncture being afterward closed by a Lembert suture. The exciting cause of the peritonitis has already been eliminated. If an appendix, it has been removed; if perforation of an ulcer, it has been sutured.

When the peritoneal contents have been replaced, nothing remains but the closure of the wound and drainage. This is effected by the employment of one or two drains of small diameter, the remainder of the wound being closed. One of these generally passes into the pelvis, and often another into the loin. This latter may emerge through a stab wound made posteriorly. My favorite drain is known in America as the "cigarette drain." It consists of a thin strip of sterile gauze, around which is loosely wrapped a layer or two of thin rubber tissue. In place of the cigarette drain, especially if the pus be thick, a fenestrated rubber tube is sometimes employed. I never employ for purposes of drainage unprotected gauze strips or masses of packing. A strip of gauze, carried through a glass tube into the pelvis, is, however, occasionally used. For the emergence of these drains comfortable spaces are left in the wound unsutured, or the sutures may be inserted for future use, but left untied.

Often, while the operation is in progress, an intravenous saline infusion is given by an assistant. The smallest possible amount of anesthetic is administered. It is the operator's endeavor to complete the operation as rapidly as possible, and as a rule the patient is not on the table longer than twenty minutes. For the reduction of the tympanites I have often given, hypodermically, physostigmine salicylate .002 mg. I am very skeptical, however, as to the efficacy of this drug. A small hypodermic injection of morphine is usually administered at the close of the operation.

The treatment of these patients *after* operation is of considerable importance. It is not, of course, necessary to dwell on the means of stimulation, such as enemata, hypodermoclysis, venous infusions, etc. The postoperative posture of the patient, however, is, in my opinion, of the greatest importance. The head of the bed is elevated 40 to 50 cm., so that the drainage current will be toward the pelvis. This, in America, is known as Fowler's position. It is maintained for about a week. The thighs are generally flexed over one or two pillows. This adds to the patient's comfort; indeed the posture, whereby the chest and head are elevated, is usually pleasing to the patient. Starvation is absolute until abdominal distention is diminished by normal passages of flatus, and until vomiting ceases. Generally at least twenty-four hours elapse before anything, except water in small quantities, is allowed by the mouth. Saline enemata, small in amount, 250 gm., are regularly administered, and some-

times nutritive enemata are advisable. Gastric lavage is frequently given before the patient leaves the operating table, and is often continued at intervals until vomiting ceases, and abdominal distention diminishes. It not only gives relief, but is most beneficial in its action, by removal of pressure from heart and lungs, and by encouragement of the intestines to resume their normal peristaltic action.

Drainage remains as established, for thirty-six or forty-eight hours, and then its removal is begun cautiously and gradually. The drains, being covered by the smooth and slippery tissue, can be extracted without pain and without disturbance of the surrounding intestinal coils.

Having thus briefly outlined my general plan of procedure, it will not be amiss to dwell more particularly on some of the details of the operation, and to discuss them in connection with other methods practised often with equal success by other surgeons.

Rapidity of Operation.—This seems to me one of the most important points. The duration of the operation should be as brief as possible. It should be completed in less than thirty minutes; indeed fifteen or twenty minutes should generally be sufficient. To accomplish this result, all details should be carefully arranged before anesthesia is begun. Assistants and nurses should be fully instructed as to their duties. Complete infusion apparatus should be ready for immediate use. If the surgeon feels that the operation will consume an hour or more, I honestly believe that its omission will offer the patient a better chance for recovery.

Incision.—As already stated, an incision directly over the exciting lesion, seems generally advisable. Some surgeons, however, feel that it is wiser to make the primary incision at some distant point, so that, in case the peritonitis be not general, the unaffected area may be walled off by gauze, before the septic area is exposed by the second incision. Perhaps in certain cases, where there is considerable doubt as to existing conditions, this may be advisable, but it seems to me unnecessary, as a general rule, to resort to a procedure which adds somewhat, even if little, to the severity of the operation.

Methods of Cleansing.—Perfect cleansing is, of course, impossible. The imperfect cleansing, however, which is accomplished in more ways than one, is often sufficient to tilt the scale toward recovery. Whatever method may be employed, the avoidance of mechanical or chemical irritation of the lining cells of the peritoneum is of the greatest importance. Injury or irritation of these cells deprives the patient of just so much power to absorb and nullify the virulence of the poison, and exposes new areas for septic absorption. For this reason I have for some time employed only normal saline solution. Chemical irritants, such as boric acid, Thiersch's, mercuric bichloride, peroxide of hydrogen solutions, I have abandoned as deleterious. The saline solution is also useful

as a stimulant, for a considerable amount is absorbed into the blood-vessels during the progress of the operation. Mechanical irritation, such as must result from sponging or rubbing the peritoneal surfaces with gauze, seems to me also to be injurious.

Drainage.—Concerning this detail so much difference of opinion and practice exists, that, I fancy, many divergent views will be forcibly enunciated at this Congress. At the one extreme entire absence of drainage will probably be advocated; at the other, multiple and balky drainage. As stated, my own practice limits drainage, as a rule, to one or two small drains, called in America "cigarette drains," which consist of a narrow strip of sterile gauze, around which is wrapped thin rubber tissue. The thickness of the drain is usually not much greater than the ordinary lead-pencil. The rubber tissue employed is very thin, and is wrapped loosely around the gauze, which should not project beyond it more than 1 cm.¹

The advantages of such a drain over strips of uncovered gauze are very great. As intestinal coils cannot adhere to the smooth rubber surface, any tendency to obstruction is obviated; drainage is more effectual; its removal is painless and does not disturb or displace the surrounding intestines. As already stated, if the pus be thick, with the probability that this quality will continue for some days, a fenestrated rubber tube of the same size is preferable. Tamponades of gauze seem to me to be disadvantageous. They are apt to interfere with the proper intestinal peristalsis, if indeed they do not cause obstruction, and while protecting any special septic area, interfere with general drainage. An exception, however, is made, should there be failure for one reason or another, to remove the cause of the peritonitis. This is then shut off by gauze packing, so that it will not continue to poison the general peritoneal cavity. In operations for general peritonitis, however, this condition can but rarely exist. When, however, there is a suppurative peritonitis which has not yet become general, and where the patient is profoundly septic, the simple opening of the abscess with tamponade of the cavity, without attempt to remove the appendix, is unquestionably, at times, a life-saving procedure. *Multiple drainage openings*, with multiple drains, I am not inclined to favor, unless the peritonitis be of that variety where numerous distinct collections of thick pus are found at different points in the abdominal cavity. A tube into each of these pockets may then be of advantage. Otherwise, I believe, one or two drainage exits are as beneficial as half a dozen. I am opposed to *postoperative irrigation*. This, in past years, I have tried in various ways, but long since have entirely abandoned. The entire omission of peritoneal drainage has recently been strongly advocated by a few surgeons, and their experience, while not

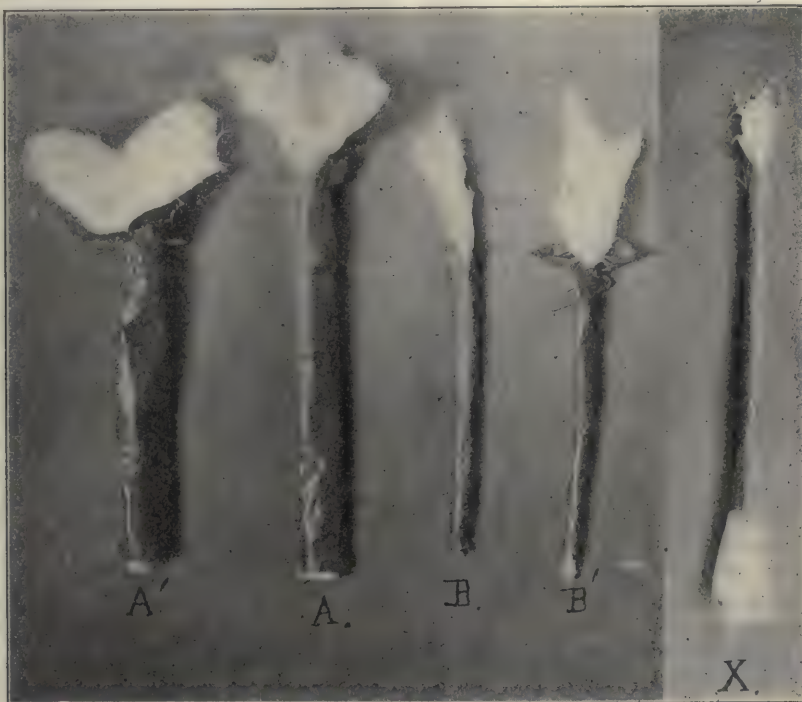
¹ Illustrations from Dr. Hawkes' article in Presbyterian Hospital Report, No. VI.

large, has certainly been sufficiently favorable to demand consideration. I believe, however, as a routine procedure, the absence of drainage is a mistake. Many a case will progress satisfactorily without drainage; but in a long series of cases, I believe, the surgeon who employs some slight egress for poisonous secretions will have better results than he who closes the peritoneal cavity. I would, however, prefer entire absence of drainage to that which is attempted by means of large masses of gauze. To this I have always been opposed.

Evisceration of Intestines.—This should generally be avoided. In former years I often deliberately encouraged the intestines to emerge from

the intestines. Should these be removed? If very loose or hanging by a thin attachment, they should, I think, be removed. If, however, the patches be quite adherent to the intestines, it seems to me better practice to leave them undisturbed. They may be infectious, but it is wiser to take the chances of a small localized septic process, rather than by their removal to expose new areas for the absorption of the sepsis.

Enterotomy and Enterostomy.—If the small intestine is found to be enormously distended, and especially if during the irrigation it has partially escaped from the abdominal cavity, I am inclined to believe that an incision in its wall, and the "milking out" of some of its contents, is in some



CIGARETTE DRAINS.

A and B before introduction. A' and B' after introduction; upper ends unrolled into the dressing.
X Badly constructed drain, gauze rolled too tight and at lower end fringing and projects too far.

the abdominal cavity, in order that the cleansing process might be more thorough. I have never seen any great amount of shock result from this procedure, but I invariably used the utmost gentleness in my manipulation, and endeavored to protect the emerged coils by smooth towels wet with hot salt solution. At times, however, I found the replacement of the intestines attended with considerable difficulty, and as no distinct advantage seemed to result from the evisceration, I have in recent years tried to avoid any intestinal protrusion.

Removal of Lymph.—Often, especially around the original lesion, there will be seen masses of fibrin, and patches and flakes of the same material may be found at different points adherent to

cases a beneficial measure. Some years ago I showed that a mere opening will not empty the intestine for a distance longer than perhaps 50 cm., and to effect a substantial evacuation, even of gas, a so-called milking process must be practised. This must, however, be carried out with the utmost gentleness by the gloved fingers. The opening, in my opinion, should be at once closed by suture. The usual protection of the peritoneal cavity is, of course, employed.

A temporary enterostomy is not, in my opinion, often of benefit; indeed, I think, it exerts a rather deleterious influence. It will not lessen the sepsis, and if the intestines mean to recover their peristaltic action, this will be accomplished without the aid of an arti-

ficial anus. Their recovery from a semi-paralyzed condition will be often hastened by gastric lavage. This will also notably relieve abdominal distention. The establishment of an intestinal fistula or anus adds slightly to the duration of the operation, and in my experience, after the expiration of a few days, by reason of septic complications, and interference with nutrition, it has been distinctly prejudicial to the patient. Its early closure if, of course, designed, but this cannot usually be attempted until a week or two has elapsed, as the patient before this time will not be in a condition to endure a secondary operation of such difficulty. My experience with this procedure has, I grant, not been great, and I also grant that in some cases it may be of some advantage, but as a general practice I am inclined to consider it with disfavor. The Greenough tube I have not employed, but I should judge that in certain cases it might be beneficial.

Injection of Magnesium Sulphate.—Injection of magnesium sulphate into the small intestine by means of a hypodermic needle, formerly seemed to me a measure of considerable value. Though I still employ it, I am less enthusiastic as to its use. Some surgeons, however, regard it with favor, and I am still inclined to believe that it is often beneficial. If the source of the peritonitis has not been removed, it should, of course, never be employed.

Postoperative Position.—As already stated, I firmly believe that the elevation of the upper part of the body, with the depression of its lower part, so that the current of the abdominal drainage is downward toward the pelvis, is of the greatest value. The head of the bed should be elevated about 50 cm. It is known that the pelvic peritoneum is more tolerant to poison than that of the upper abdomen, and the employment of this posture enables the patient to make use of this property, as well as to take advantage of the force of gravity. Correspondingly prejudicial, in my opinion, is the reverse position where the pelvis is elevated and the chest and head depressed.

Conclusions.—1. No one plan of treatment is applicable for all cases.

2. The majority of cases are best treated by operation, but there are also many cases where operation diminishes the chances for recovery.

3. Undoubted cases of general peritonitis recover without operation.

4. Rapidity, gentleness and removal of the cause are the most important features of the successful operation.

5. Irrigation with saline solution is generally recommended. All chemicals and mechanical irritants are to be avoided.

6. Drainage should be provided, but the drains should be smooth, non-adhesive and of small diameter. The cigarette drain is preferred.

7. Enterostomy is not advocated.

8. Gauze packing is injurious.

9. Fowler's position after operation is most advantageous.

PHASES IN THE DEVELOPMENT OF THERAPY.¹

BY A. JACOBI, M.D., LL.D. (MICHIGAN, COLUMBIA, YALE.)

OF NEW YORK.

(Continued from Page 824.)

To extol here what laboratory work has done for public hygiene is superfluous, but it would be a mistake to identify hygiene and its teachings with the bacteriologic era. They always existed. Air, light, and cleanliness were always known to be necessities; the hygiene of dwellings, disinfection, sewage, the disposal of the dead, were discussed even in the Middle Ages when the rapacity of the petty and big masters and the sensuousness of the high clergy were the supreme rulers of society. Even in antiquity the plague of Athens taught its lessons, and if the heartrending description by Josephus of the destruction of Jerusalem be only partially true it must have been a source of instruction at least to the victors. Epidemics have always been great teachers, most impressive among them in modern times the cholera invasion of 1831 and 1854, the typhus of Upper Silesia, which became immortal through the tale of horrors told by Virchow, and the typhoid epidemics of our own making during the Spanish War. Necessity was the mother of hygiene in England, whose large population on a narrow island, industrial development and misery, caused inquiries into the sources of morbidity and mortality, and the establishment of commissions since 1842, the Public Health Act of 1848, the creation of permanent and general and local Boards of Health, and the Local Government Board Act of 1871. We are slow in imitating the English example. If it were not for the Marine Hospital Service, whose duties and privileges are gradually enlarged, we should have no central sanitation of any kind. The attempts at securing for the most urgent needs of the people, its health and physical welfare, a representation in the central government at Washington have been treated with scant courtesy. There should be, however, for the purpose of prevention, which has obtained the most exact basis in bacteriology, a close connection between the State and central government and medicine. Social legislation is most urgently needed if the human society means to emerge from its present low civilization.

Military medicine and hygiene were practised to a certain extent by the Greeks and Romans; even the Persians had something of the kind. Cyrus is reported to have boasted in the presence of his father of having supplied the army with surgeons. Kambyes replied, "Do not speak to me of surgeons. They work like cobblers patching up injuries. It is much better to guard the men against falling sick." The Middle Ages were almost entirely without any such measures. France had its Ambroise Paré in the sixteenth century, England its Pringle

¹ Address on Medicine, delivered before the Medical School of Yale University, June 26, 1905.

and Brocklesby; it was the first to establish a school for military physicians, that at Netley, in 1854. No country has done more for the military hygiene than, at a certain time, our own. The Civil War acted like a political, moral and scientific thunderstorm. The young and active Surgeon-General William Hammond lent his hand and power to the Sanitary Commission, composed of volunteer medical and lay citizens. The camps were kept clean, the men were clad and supplied with medicines and physicians, the pavilion system of hospitals introduced, non-military doctors were appointed to report on them, and epidemics were traced and stamped out. The Geneva Convention of 1863 was in part the direct result of what had been learned in America, and nothing could have been warmer than the enthusiastic eulogies conferred upon our achievements by Rudolf Virchow. But then again in 1900, he, then nearly eighty years old, said to me—"Tell me about your horrors of Chickamauga and Montauk. Why do you kill the youth of your land before they smell powder? Whose fault is it?" You all know that it was the disregard of all the best known laws of hygiene and preventive therapeutics that destroyed hundreds who should be alive now.

A few minutes ago I spoke of the necessity of giving medicines in proper cases, times and doses. It is not long since the therapeutics of infancy and childhood attracted the attention of the profession very closely. In it hygiene and medication are accurately interwoven. A thousand books and essays have been written within a dozen years on the prevention and cure of infant diseases. The number of mothers, however, that nurse their own babies has not increased, and the teaching of artificial feeding made but little progress. The main theoretical advance is the warning against proprietary foods, which, to judge from the array of expensive advertisements, do a great deal of good—to the manufacturers. That warning seems not to be heeded by the public, for the advertisers are not yet sick of their bargain. Another step in the right direction is the attempt at securing a germ-free and pure cows' milk; it has been successful to a limited extent. There are those, however, who, in spite of better teaching, will feed unmixed cows' milk and refuse to learn that cows' casein is not woman's casein, and cow's milk fat is not human milk fat, or that pasteurizing or boiling will remove some of the dangers caused by microbes to which city milk is exposed. Or when they *do* boil it, they will kill the milk by overboiling and complacently tell you they boil it—and then they call it "sterilizing"—thirty or sixty minutes, and they ruin the baby's health and give it scurvy. They have been taught, and so have we these thirty-five years, by physiological experiments that everybody may imitate, that a certain amount of starch combined with vegetable albumin in the cereals is digested by the very new-born, and improves the assimila-

tion of the milk of the cow, which never can be made human, no matter whether you call it "modified" or "certified."

There are conditions in which even in cereal suspensions cow's milk is not tolerated at all. In the hot summer of 1854 the babies in New York were born to die of gastro-enteritis. Bad cow's milk, the heat of the tenement houses, and my ignorance worked hand in hand. I met two older colleagues at a street corner and threw up my hands in despair. "Stop milk," said one. "Starve them," said the other. Add to this, my young friends, as much germ-free milk as will be tolerated, generally very little indeed, and the white of eggs, and air if it can be had by day and night, and bathing, and you have the main roads leading to the salvation of your babies. There is wholesale preventive therapeutics for you.

The therapeutics of old age—a relative term, as many a man is physiologically older at fifty years than another at eighty—has improved with a better knowledge of arteriosclerosis. Is it possible to treat it as a uniform entity? It results from the unavoidable arterial changes beginning, according to Thoma, in the thirty-fifth year. It is increased by either sedentary or overactive life, by the extremes either of animal or of vegetable diet, the former resulting in ptomains, the latter in calcareous deposits; by abuse of tobacco or alcohol; by syphilis or other infectious diseases. Who is there to pretend that there must be a uniform treatment? It is true there are certain rules to be obeyed in every case. Let the food be mixed, small in quantity, poor in calcium, oxalic acid, and chlorine. Give milk and alkalies, as you do in diabetes and in uric acid diathesis, in food and as medicines, perhaps in the form of lactates. Give antisiphilitic treatment in proper cases, mainly of those who are of a comparatively early age. The ergotin recommended by a modern author (Rosenbach) is contra-indicated still more than strychnine, which is rarely tolerated by those whose heart-muscle is subject to atheromatous or interstitial changes. Employ cold water in friction only, never as a bath. That should be warm, not hot. Together with warm bathing, iodides should be given for the dilating effect, as Huchard first pointed out, on the smallest arteries. The same result is accomplished by nitrites, by aconite, and by opiates; arsenic may be tried for its action as a nutrient and a nervinum, and occasional doses of calomel when the kidneys are normal. Otherwise beware of calomel, though it was one of the greatest remedies extolled by Benjamin Rush. Together with venesection he speaks of calomel as the "Samson of medicines," forgetting that Samson slew three thousand. Exercise should be modified according to the case, also passive movements and gentle massage; and the use of carbonic acid in the warm bath may be expected to act as a gentle stimulant to the countless blood vessels.

Medicines and doses have to vary. Yet to believe that a mathematical proportion, determined by age or by weight, can be relied upon is fine reading in books, but it does not correspond with what Nature has ordained or permits. Perhaps some instances which I am going to give you, my young friends, do not correspond with what you believe you know. But listen to a few fragments:

A baby, say of one year, must have, according to the books, $\frac{1}{20}$ —some say $\frac{1}{15}$ —of the dose of an adult. Now take that baby with enteritis: a severe diarrhea exhausts the body; ten per cent. of its weight may be lost in a day and hydrocephaloid may be the result. That baby should have, and bears, with other medicines directed against the local affection, $\frac{1}{30}$ or $\frac{1}{40}$ grain of opium every two hours. It bears it well. I have given it more than fifty years, and I have attended tens of thousands of babies. They tell us opium will sometimes kill in small doses. So it may, but not if you keep your eyes open and watch the effect of the first or the fifth dose. It may kill adults as well, unless watched. There is such a thing as idiosyncrasy, no matter how it is explained. According to the schedules, the adult would take $\frac{1}{2}$ or $\frac{1}{3}$ of a grain of opium every two hours in the same condition, and that would be a large dose for him. Accordingly, opium should be watched more carefully when given to the adult than to the baby.

Give an adult one grain of extract of belladonna daily, and soon it will prove an overdose. Give a baby of one year with whooping cough, or a larger child with incontinence, $\frac{1}{4}$, $\frac{1}{3}$, sometimes a $\frac{1}{2}$ grain daily—which would correspond with the proportionate schedule dose for an adult, of 5 or 8 grains—and no such symptom will appear.

Five grains of potassium iodide I have seen to give a gigantic adult salivation and edema of the face, neck and glottis; a meningitic baby of two years will take without the symptom of overdosing two drams daily, for weeks.

A syphilitic baby, a month old, takes $\frac{1}{4}$ grain of calomel three times a day for months; the only thing that happens to it is that it gets well. Give a proportionate schedule dose to an adult for a week, and he has a salivation, no teeth left in his mouth, and you have a well-deserved suit for malpractice.

Give $\frac{1}{60}$ grain of corrosive sublimate in a half-tablespoonful of distilled water every hour for three or five days to a baby of six months, and its laryngeal diphtheria will, or, at least, may get well, and it shows no salivation, no vomiting, and no diarrhea. Give the schedule dose—20 times as much—to an adult, and he will have salivation and be a horror to his friends, and may perish with mercurial poisoning.

Heart stimulants are borne and required by the young in larger relative doses than by the adult. Let me speak of digitalis only. I expect

you give your medicines in order to obtain an effect. To give it in such small doses as to produce its action after a week, is superfluous. I do not advise giving placebos except when you have to doctor the patient's prejudices or neurotic aberrations. That may become necessary among adults. "Whoever does not know how to simulate when it is required does not know how to cure." Now a baby of a year will take five drops of a good tincture of digitalis every two hours, but even so, you may see no effect for a whole day. Give the drop or the half drop you read of in the books, and you are perfectly safe as far as a court of law is concerned, for nobody can prove you injured your patient directly—but you overdo what they like to call expectant treatment, which is no treatment and no cure, and no cure. Give the schedule dose, that is, 15 or 20 times as much—that would be a dram—to an adult. He will not bear it.

I beg of you, study your cases with more of an eye on the patient than on the book; and now and then believe an old experience rather than a young, and sometimes fresh, treatise.

What I claimed in Rome in 1894 still stands. We all agree that overdosing is wrong and harmful, but also that it is being practised. To give mercury to salivation; salines until the rest of soluble albumin and salts is gone; digitalis until the pneumogastric nerve is overstimulated into vomiting and collapse; belladonna until the throat is as hard as a gridiron, and the pupils like wagon wheels; quinine until the patients get deaf; iron until gastric catarrh and constipation destroy what was left of health; to burn and saw noses for everything in the line of ailment that may befall the flesh; to put glasses on the nose of whosoever is epileptic, or lame, or demented; to prescribe acetanilid because an advertising manufacturer says it is your sacred duty to him and his bank account; to cut the cervix uteri for endometritis and sterility; to sew up the same with the same end in view; to cauterize and otherwise handle the problematic ulcerations of a uterus for endometritis and sterility; to introduce daily or twice a week tampons of glycerole for the same purpose and with the result of causing or increasing parametritis—these and many more things, most of them awfully modern, are abominations created sometimes by defective or vicious theories, and now and then by the thoughtless generalizations of occasional indications.

In connection with the foregoing I beg to add: Neither a deluge nor an absence of drugs makes the physician.

The first indication in therapeutics is a correct diagnosis. The most efficient treatment is local, and the cause, seat, and essence of a morbid process should be known, or at least sought for. The most promising therapy of the future—serotherapy—owes its origin to nothing but an accurate bacteriological diagnosis.

Most diseases have a tendency to get well,

vented the trocar in 1765, was perfected by Trousseau, by Bowditch (1852), Dieulafoy, and (1879) by Estländer. No one is here who has not performed or seen these operations. Let the progress made by the average physician be measured by the fact that the greatest French operator, Dupuytren, when his empyema was diagnosed, refused to be operated upon. He preferred, so he said, to fall into the hands of God rather than of man. So he did, only fifty-three years old, in 1835, only seventy years ago.

The extensive kidney surgery was initiated as late as 1869 by Gustav Simon, of Heidelberg.

Modern Gynecology dates from Marion Sims. Altogether the United States have contributed largely to the advance of Therapeutics. Since McDowell performed the first successful ovariectomy in 1809, Nathan Smith, John and Washington Lemuel Atlee, Alexander Dunlap, Edward Randolph Peaslee, Charles A. Budd, and a host of modern operators have carried the renown of American ingenuity and daring all over the world. When in 1850 I assisted—in a minor capacity—my teacher Wutzer, in Bonn, in his attempt at closing a vesicovaginal fistula (he was the only one besides Jobert de Lamballe that in Europe dared to do so) I heard the name of Marion Sims, who a year previously had scored the first complete success. I still have in my possession the clumsy flat speculum used by Wutzer. Sims' speculum, which was invented in 1846, we did not know. In regard to its value Robert Olshausen proclaimed in 1896 that without it the operations for prolapse and fistula could not be performed, and that the extirpation of the uterus and its adnexa, and the vaginal operation for myoma could not have been thought out. In 1854 Nathan Bozeman operated successfully on vesicovaginal fistula complicated with laceration of the cervix. The silver suture of Marion Sims was a great triumph when proposed in 1852. So was Battey's castration operation of 1872, simultaneous with that of A. Hegar in Germany and Lawson Tait in England—both very useful, but also very dangerous to the morals of doctors and women, and therefore both praised and censured. Long before (1830), Hugh Lenox Hodge invented his pessary, whose picturesque history is given by A. R. T. Penrose in his eulogy of the inventor (1873). He was the same, though, who marred his renown by the bitter opposition to Oliver Wendell Holmes, who, like after him, the unhappy and immortal Semmelweis, taught the contagiousness of puerperal fever and the possibility of its prevention. That has been proven by the mortality of women in confinement falling from 16, 4, 2 to 1, $\frac{1}{2}$, $\frac{1}{4}$ per cent., and less. Let me add the illustrious name of Alonzo Clark, who, in 1841, advised the opium treatment in peritonitis.

Is there nothing else? The greatest gift America has given the world is not the realization of a Republican government—ancient cul-

ture exhibited it before and allowed it to perish by political shortsightedness, lust of conquest and expansion and undemocratic jealousy—it is anesthesia. For the other therapeutical boon in this new era of therapy we have to look to Europe—it is antisepsis and asepsis. Operations on the skull, ear, and brain, the spinal cord, including lumbar puncture, the bladder and prostate, and the abdominal organs, have become so numerous that those who enter the profession at present cannot comprehend the amount of labor and acumen required for their perfection. I have only a word of warning in regard to them. Do not believe that every case of peritoneal tuberculosis operated upon owes its recovery to the operation, and do not find a justification for an operation in its immunity from danger. It is true that the temptation, sometimes not justified by its results, to perform a laparotomy for the purpose of arriving at a diagnosis is very great indeed (for corrosive sublimate and iodoform, and soap and water protect you and your patient in most cases—by no means in all)—and the public, mainly the female half, have developed an incredible greed of operations within a few years. But the mere inspection of the abdominal cavity should not take the place of brains. There are a great many ways of arriving at a diagnosis; to utilize only one, and that one not always without risk, is unworthy, unscientific, and immoral.

Ophthalmology has become a new science and art since the invention by Helmholtz of the scope, and by the epoch-making work of Albrecht von Graefe; the number of the blind would be smaller if Credé's treatment of the eyes of the newly-born were appreciated more thoroughly by the practitioner.

The ear, the nose, and the throat have become accessible to direct treatment. A mastoid operation when complicated is a great personal triumph, and frequently life-saving. One in 20 bone operations on the nose will prove beneficial; the removal of large adenoids improves respiration, hearing, the intellect, and facial beauty; what I mostly miss is after-treatment; mild but systematic irrigation should follow the operation for months in succession. The resection, not exsection, of the hypertrophied tonsils may have similar effects, but by far not to the extent that is claimed, for the theory that the tonsils are the main inlet of infectious diseases, such as diphtheria, scarlatina, and rheumatism, will have to be modified to a certain extent. The tonsils are surrounded by a firm membrane. Dozens of years ago I could prove that diphtheria when limited to the tonsils was least dangerous. The thousands of other lymph bodies disseminated in the fauces and posterior nares are more guilty than the two dozen which form the tonsils. It is they that should be considered in the preventive treatment of all the infectious diseases of childhood. That is why the claim of a modern writer that he can prevent tubercu-

losis by the exsection of the tonsils, which very few men beside himself, according to his categorical opinion, are able to perform, should be taken with more than the customary grain of salt.

Kussmaul's irrigation of the stomach for volvulus and stomach diseases has opened the way for many additions to treatment and diagnosis, to dosing and to overdosing. The esophagus is, however, not labeled "this way in." Stomach sounds have a way of piercing a carcinomatous wall, of rubbing against an ulcerated stomach, and being unfriendly in general. The presence of hyperacidity, which is not the entity of some but a symptom of many different conditions, permits its employment once to ascertain the chemical nature of the fluid; to repeat an indefinite number of office performances may be entertaining to the patient, which is doubtful, but it is no longer therapeutic morals or wisdom. Indeed, the frequent punishing of the gastro-enteritic baby with the stomach tube, which was a pleasurable occupation a few years ago, appears to lose its allurements, even to the pediatricist.

Billroth's resection of the pylorus, 1881, has started a brilliant series of operative procedures, among which gastro-enterostomy and the removal of parts of intestines for the purpose of circumventing and starving malignant tumors, have proved successful. Another starving process of tumors by cutting off their arterial supply has been suggested by Dawbarn.

Robert Weir's most ingenious utilization of the appendix, fastened in the abdominal wall, for the purpose of flushing the colon has greatly facilitated the treatment and actual cure of otherwise inaccessible intestinal ulcerations.

Our knowledge of the congenital or infant stenosis of the pylorus, though it is limited to a few years' experience only, has undergone its changes. It is no longer an exclusive property either of the operator or the undertaker. Gastro-enterostomy will be performed in but few cases. For the majority of cases are spastic, and depend on faulty mother's or cow's milk, overfeeding, hyperacidity, constipation, mainly that form which I have described as "congenital constipation," or on nerve irritability, which need not in later life lead to general neurasthenia, but resembles the isolated gastric neurosis of the adult male or female; it should be treated by the regulation of diet, change of milk, by opium, belladonna, lime water, magnesia and bismuth, and large enemas.

In the treatment of blood diseases the simple infusion of sodium chloride solutions, with or without the addition of sodium carbonate, has taken the place of the transfusion of defibrinated or pure human blood, not to speak of the attempt made thirty years ago in New York at substituting goat's milk. As hemostyptics, antipyrin in strong solution, adrenalin, and gelatine have replaced or supplemented ergot; as physio-

logical blood feeders, the inhalation of oxygen has proved successful, both by clinical observation and direct experiment; and the circulation of the blood is remedied by a change in the position of the body, by hydrotherapy, by the action of digitalis on the vagus, by that of nitrites, aconite and iodides on the vasomotors, and in congestive diseases of the uterus and the spinal cord by that of ergot.

Bier's treatment of tuberculous joints by obstructive hyperemia appears to act both by the retardation of the circulation and the utilization of the antitoxic effect of blood serum.

Venesection is beginning to meet again, in appropriate cases, with deserved favor. The fanaticism of Bouillaud will not return, and no Cavour will be killed again by medical blood-letting. But the last few decades have developed at least a few indications. In venous obstruction depending on disease or disturbed function of the heart, in pulmonary edema, in the intense cyanosis and dilatation of the right ventricle during the third or fourth day of an unusually severe pneumonia, in the poisoning of blood with urea or carbon oxide, venesection should find and has found a foremost place among our remedies.

Atrophy is surely benefited by rectal and by forcible feeding, the latter either through the nose or the stomach tube.

Neurology has enjoyed half a century filled with progress. Narcotic alkaloids have taken the place of the drugs. Chloral hydrate began its therapeutic career in 1869, and a large number of good and bad synthetic remedies made their appearance within half a generation. The worst of them all is acetanilid, which must not be called publicly by its patented or by its disguised name for fear of a lawsuit. It is a strong aniline poison, has caused many deaths, and innumerable cases of cyanosis and heart failure by decomposing hemoglobin, into methemoglobin. That is the same effect known in overdoses of potassic chlorate. That fatal change was discovered by Marchand in 1879, and explained the cases of poisoning by that so-called domestic remedy, which I had been reporting the previous twenty years.

Psychic diseases have been amenable to more effective therapeutics since their etiology was better understood. Ten per cent. are due to alcoholism, ten to syphilis, many to infectious diseases, part of which are preventable but not prevented. Of 460 cases of mental disorders resulting from infectious diseases there were 113 that followed influenza, 96 rheumatism, 87 typhoid fever, 43 pneumonia, 41 smallpox, 19 cholera, 16 scarlatina, 11 erysipelas. Among the 113 influenza insanities, 70 per cent. were influenced by morbid heredity, previous diseases of long duration, and mental overstrain. I dare say that at least one-half of these infectious diseases could have been prevented and all their results obviated.

Piper studied 215 cases of congenital idiocy.

The following facts were found in the unfortunate histories. There was mental disease of parents or relatives in 20 per cent., tuberculosis of parents in 15, of grandparents in 18 per cent.; in 15 per cent. the father was a drunkard, in 7 syphilitic. Among 75 cases of acquired idiocy, 20 per cent. were attributed to scarlatina complicated with diphtheria, 20 to a fall, 13 to rachitis, 12 to measles, 6 to protracted labor, 1 each to moist dwelling, to forceps applications, to renal dropsy, to typhoid, to trauma of head, and to insolation. Almost every one in this number could have been prevented.

Great modern additions to our therapeutic measures are the Roentgen rays, probably also radium. I mention them without claiming prophetic gifts. They may be highly valuable, though whoever looks for a panacea is always mistaken. Exaggerations of the antiseptic effects, for instance, of colloid silver in internal and external sepsis cannot annihilate its merit. I believe I have seen good results from the ointment (15:100) and from rectal injections of 1 part of collargol in 100 to 500 sterile water, in puerperal fevers and in septic scarlatina and diphtheria. In cerebrospinal meningitis it failed to act. Of methylene blue I may say the same. These fifteen years, since the first recommendations by Mosetig-Moorhof, I have had it under constant observations in cases of inoperable intra-abdominal cancer. I use it internally only. Subcutaneously, it is cruelly painful. I cannot prove a total cure, but I notice reduction of the tumor, improvement in health, restoration of the ability to work, and retardation of the morbid process, sometimes for many years.

I shall make no remarks on the modern improvements of methods in the treatment of contagious or infectious fevers, except one, namely, tuberculosis; and I shall not repeat what is in the minds of all of us—domestic hygiene, diet, and sanatoria. There is a tendency yet to believe in sanatoria for the incipient cases only. The rich who go there or travel for their health from one salubrious place to another have a good chance to get well. The poor man, who is sent for a few months will improve, learn some rules of diet and hygiene, be able to work for some time, fall sick again, with an alteration of forced idleness and illness until the end—the usual end. He may have learned, however, to take some care of his sputum and to guard his family against contagion, as far as circumstances permit. The advanced consumptive, however, is the real danger to the family and the community. In any New York tenement house where there is one case of consumption there are more. A dying consumptive is a constant danger. It is he that should be removed to a healthy, comfortable place, which need be no elysium but a good enough place to die in without endangering the community. That is the only way in which epidemics of chronic diseases may become extinct. The hundreds of thou-

sands of leprous of Middle Europe have disappeared; so have the thousands of sufferers from modern Norway. The same should be done with advanced chronic tuberculosis. A few hundred millions of our country's wealth would suffice to exterminate tuberculosis within a generation. Meanwhile, therapeutics need not be idle. The emphatic demand for tuberculosis sanatoria has so impressed the mind both of the public and the profession that no voice is heard any longer but that which extols sanatoria as the *only* possible salvation, and decries drug treatment. That is a grave mistake. We cannot say that any drug heals any disease by itself; it aids in a cure, it relieves symptoms, it regulates the circulation, it increases the power of resistance. That is what is meant by healing or by curing. That is what you may do in pulmonary tuberculosis, as in every other disease. Strength is saved and life prolonged by moderating cough and providing rest; the circulation you may regulate by stimulating and strengthening the heart and aiding it to overcome the pulmonary obstruction, by drugs and by employing hydrotherapy to regulate the circulation of the vast surface of the body; the power of resistance you may improve by choosing proper food; by helping the stomach and intestines to digest it, and by preventing auto-infection by antiseptics whose action is generally underestimated. Auto-infection is not so inaccessible to treatment as the bacteria toxins in the cells of the tissues. The former is produced on the surface of the mucous membrane, the latter is introduced from without; located in the cells, it cannot be reached by our antiseptic drugs, for bacteria to be destroyed require six times larger doses than the organic cell permits; the latter would be destroyed before the former is reached. Auto-infection, however, being the product of faulty digestion, can be reached in the intestinal tract.

The reputation creosote has gained in the treatment of tuberculous patients is in part surely the result of its action on the alimentary canal. Whether it has any other we do not know. Whichever it possesses is better exhibited by the preparations, fluid or solid, of guaiacal which forms the important part of creosote. These fifteen or more years since its use was recommended by Schüller I have employed it daily with good results. That I add arsenic, which is better tolerated in the form of arsenous acid than in the usual solution, and heart stimulants, and symptomatics, goes without saying. What I wish to impress upon you is not to neglect what is near at hand. While we are working for the admission of our patient to one of the few accessible sanatoria, he may die.

Perhaps it is human fate never to accomplish all that was intended, but a professional man who feels his duties and responsibilities to his fellow-men should have as little of the shortcomings resulting from ignorance or indolence

as possible. Indolence cannot be cured, and the man who is possessed by it should go to where no heart is required, into trade or menial occupations. Ignorance may be relieved through love of knowledge, or ambition, or love of mankind. Whoever has the latter may be made a good physician. At the same time he will be a good citizen. His interests go beyond the merit of the individual. Society is sick like its single members. Whoever is a student of causes will aid in correcting faulty results. The widespread diseases of the people beyond bodily ills are ignorance, poverty and crime. Nobody knows that better than the physician whose hand is on the pulse of man. He knows that much of the suffering of the present generation is caused by hereditary influences. As long as the epileptic, the criminal, the imbecile, the dying consumptive, the syphilitic, the gonorrheic, are permitted to propagate their kind or spread disease the human race must kiss the dust. The object of medical science as represented in the profession must be to influence the opinion of the public and its legislatures in behalf of preventive physical, mental and moral therapy. All that may seem far away and like a Utopian mirage. But we shall not be the last to inhabit the globe. Compare it with what it was only five hundred years ago, two hundred years ago, and learn to believe in progress.

The problems of every good man who loves his neighbor, all his neighbors, are more apt to be brought nearer their solution by the knowledge and tact of the physician than by any other man. He knows how crime, that worst disease of all, is engendered and propagated; knows many of the causes, all of the results of poverty, and takes a natural interest in the schools where the future citizens are educated. The time has not yet come to place the physician—the medical profession—where it belongs. In part that is our fault; it is not *only* hard work and fatigue, it is often indifference or indolence, that keeps us away from the field in which the battles of the people for gradual mental and physical improvement are fought. While hitherto when we spoke of modern therapeutics we have meant the bodily sick, man or community, future therapeutics must be directed against all the faults and ills of all mankind.

Study of the Gastric Contents in Urticaria.—LEONARD K. HIRSHBERG (*Am. Med.*, September 2, 1905) in a study of the gastric contents in eight cases of urticaria, seems to have proved the frequent coincidence of hyperacidity with this condition. Five of his eight cases of urticaria, one of which was the gigantic form following tetanus antitoxin injected as a prophylactic, show a high total acidity with a high amount of free hydrochloric acid. Dr. Hirshberg has been unable to find any previous analyses of the stomach in urticaria cases, published in the literature. He suggests a further study of these cases by some one who has access to a larger number of urticaria individuals.

THE DIGESTIBILITY OF EVAPORATED CREAM.

BY TIMOTHY MOJONNIER, M.S.,

OF GREENVILLE, ILL.

THE use of evaporated cream in preference to dairy and condensed milk has become so general that a study of its digestibility, and a comparison of the relative ease and rapidity of its digestion with raw, pasteurized and boiled milk is timely.

Evaporated Cream is a trade name employed by manufacturers to distinguish their preparation of unsweetened condensed milk from the older commercial "condensed milk" which is almost synonymous with the white pasty preparations owing their stability to the preservative influence of sugar. Evaporated cream is prepared by taking full cream cow's milk, sterilizing and evaporating it by special processes to a cream-like consistency, thus reducing its volume about two and one-half times. The advantages claimed are that the butter-fat is held in permanent suspension; an absolute freedom from bacteria so long as the air-tight container remains unopened; uniformity of composition and that the casein is more easily digested than in raw milk.

The method used for studying the relative digestibility of the different forms of milk was as follows: One lot of fresh milk was thoroughly mixed and divided into three portions. One portion was used for making the tests with the raw milk. A second portion was pasteurized by the usual method, that is, the milk contained in a glass flask was placed into a water bath, heated to 167° F., kept at that temperature for ten minutes and cooled. Finally the remaining portion was brought to a vigorous boil and cooled. The evaporated cream was taken from the cooking from which the original lot of milk had been removed. It was diluted before making the tests to the consistency of the fresh milk used.

Exact quantities from each kind of milk and from the diluted evaporated cream were measured in triplicate, diluted with water which had been heated to 40° C. and the precipitation made by means of very dilute acetic acid. The precipitate consisted, in the case of the raw milk, of casein and fat, while in all of the other cases it consisted of casein and fat together with part or all of the albumin. This procedure represents quite closely what occurs in the stomach when milk is taken. The well-known curdling of the milk in the stomach is due chiefly to the presence of acid.

The next step was to filter and wash the precipitate. It was then returned to the beaker in which the precipitation had been made and treated with 100 c.c. of artificial gastric juice. The juice contained 1.25 grams of pepsin powder (Merck U.S.P.) to every liter of .33 per cent. hydrochloric acid.

The artificial gastric juice was allowed to act upon the precipitates at body temperature for various lengths of time, at the end of which time 10 c.c. of formalin were added in order to check

the further action of the pepsin solution. The exact time when the gastric juice was added, as well as the exact time when the formalin was added, was carefully noted. The periods selected were respectively, one-half hour, one hour, and four hours long in all cases except with the evaporated cream, in which case the four-hour period was omitted.

The residues which remained undigested at the end of the given periods, were filtered upon folded filters and thoroughly washed. The amount of protein undissolved was then determined by the usual method.

The weight of protein undigested was subtracted from the weight of the total protein in the sample taken. The amount digested was then divided by the amount in the sample and the result multiplied by 100 to give the coefficient of digestibility in per cents. The results obtained are given in the following table:

TABLE I.

Summary of results showing relative ease of digestion of evaporated cream, and raw, pasteurized and boiled milk.

Lab. No.		Number of determinations.	DIGESTIBILITY OF PROTEIN.		
			At end of half hour. Per cent.	At end of one hour. Per cent.	At end of four hours. Per cent.
150	Evaporated Cream.	3	90.93	93.83	...
151	Evaporated Cream.	3	89.96	91.37	...
	Average	6	90.44	92.60	...
140	Raw Milk	3	84.26	90.42	97.51
144	Raw Milk	3	86.43	88.19	95.98
	Average	6	85.34	89.30	96.74
141	Pasteurized Milk . .	3	86.55	91.35	97.30
145	Pasteurized Milk . .	3	88.15	91.41	96.43
	Average	6	87.35	91.38	96.86
142	Boiled Milk	3	89.70	91.85	96.15
146	Boiled Milk	3	87.08	89.33	96.21
	Average	6	88.43	90.59	96.18

As reference to table will show, the protein in evaporated cream was found to digest a little more rapidly than that of either raw, pasteurized or boiled milk. It is fair to say that the results are quite comparable since the tests were made in the two series from the same lots of milk and identical methods of study were used each time.

In determining the digestibility of evaporated cream by means of artificial gastric juice, attention had to be directed entirely to the protein. As in the tests just reported, the protein was precipitated by means of very dilute acetic acid. The precipitate was treated with the artificial gastric juice for ten hours at body temperature. The undigested residue was then filtered off and the protein determined in it. Similar tests were made with raw, pasteurized and boiled milk. All of the results obtained are given in the table which follows.

The results, as shown by the table, obtained, show plainly that the protein in evaporated cream is as completely digested by artificial gastric

juice, as that of the other forms of milk studied. By looking over what literature we had bearing upon this subject, we found a marked disagreement among investigators as to the influence of sterilization upon the digestibility of milk.

TABLE 2.

Total digestibility of protein in evaporated cream and in raw, pasteurized and boiled milk. Determined with artificial gastric juice.

Lab. No.		Number of determinations.	Per cent. of total protein digested by artificial gastric juice.
140	Raw Milk	3	96.00
144	Raw Milk	3	96.99
	Average	6	96.50
141	Pasteurized Milk. . .	3	98.69
145	Pasteurized Milk. . .	3	98.83
	Average	6	98.76
142	Boiled Milk.	3	98.68
146	Boiled Milk.	3	98.11
	Average	6	98.40
150	Evaporated Cream. .	3	98.46
151	Evaporated Cream. .	3	99.09
168	Evaporated Cream. .	3	99.11
	Average	9	98.89

De Jagars (*Diet. and Hyg. Gaz.*, Vol. 12, 1896, p. 281) compared the digestibility of raw milk with cooked milk using pepsin and lactic acid in his work. He concluded as a result of his work that raw milk was more readily digested than cooked milk.

A. Stutzer (*Landwirthsch. Versuchs. Stat.*, Vol. 40, pp. 317-319, 1891) found by tests with artificial gastric juice that the protein in raw milk was a little more readily digested than that of cooked milk.

On the other hand, Jemma (*Hyg. Gaz.*, Vol. 16, 1900, No. 2, p. 83) found by means of artificial digestion experiments that sterilizing did not impair the digestibility of milk.

Michael, also (*Hyg. Rund.*, 1899), concluded as a result of a number of artificial digestion experiments that sterilization did not lessen the digestibility of milk. His results, if anything, lean quite a little in favor of sterilized milk.

Again Fleischman, who holds a front rank among scientific dairymen, states emphatically that sterilizing makes milk more easily digestible. He compares the digestibility of raw milk with milk sterilized at a pressure of from one to two atmospheres, by means of artificial gastric juice.

In determining the digestibility of evaporated cream by means of natural digestion experiments, the experiments were made with two different subjects. The first was a baby girl a little over a year old. The second was a grown man, a laborer, in good health.

Diet.—The child was placed upon a diet consisting of evaporated cream, diluted with water and sweetened with cane sugar. The man was placed upon a diet consisting of evaporated cream, white bread crumb and granulated sugar.

TABLE 3.
Percentage composition of fresh foods and of air-dried feces.

Lab. No.	Material.	Per cent. nitrogen.	Per cent. water.	Per cent. protein.	Per cent. fat.	Per cent. carbo-hydrates.	Per cent. ash.	Total.
168	Evaporated Cream.	1.07	73.55	6.65	8.61	9.57	1.62	100.00
169	Sugar	. . .	.21	. . .	.08	99.68	.03	100.00
172	White Bread.	1.13	45.23	7.06	.53	46.57	.61	100.00
183	White Bread.	1.04	47.43	6.50	.41	45.05	.61	100.00
181	White Bread.	1.16	45.30	7.28	.50	46.17	.75	100.00
170	Feces.	4.26	11.38	26.64	8.17	32.67	21.14	100.00
171	Feces.	4.38	12.99	27.36	8.68	29.42	21.55	100.00
173	Feces.	5.76	12.84	35.97	12.65	22.30	16.24	100.00
184	Feces.	4.24	11.83	26.53	6.70	33.61	21.33	100.00
185	Feces.	5.80	9.38	36.26	8.66	28.22	17.48	100.00
100	Feces.	5.80	36.21	36.21	8.68	22.91	18.48	100.00

TABLE 4.
Results of Digestion Experiment No. 1.

Lab. No.	Material.	Weight total material.	Weight water-free material.	Weight protein.	Weight, fat.	Weight, carbo-hydrates.	Weight, ash.	Energy	
		Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	in total food	in evaporated cream
168	Evap. Crm.	4941.90	1307.13	328.64	425.50	472.94	80.05	7883	7883
169	Sugar . . .	470.80	469.80	. . .	.37	469.29	.14	1974	. . .
	Total . . .		1776.93	328.64	425.87	942.23	80.19	9857	7883
170	Feces. . . .	89.70	79.49	23.90	7.33	29.30	18.96	332	312
Total amount digested			1697.44	304.74	418.54	912.93	61.23	9525	7571
Coefficient of digestibility of total food.			Per cent. 95.53	Per cent. 92.73	Per cent. 98.28	Per cent. 96.89	Per cent. 76.36	Per cent. 96.63	Per cent. 96.04
Weight of protein in feces not digested by pepsin solution				7.07					
Weight of protein in evaporated cream actually digested.				321.57					
Coefficient of digestibility of evaporated cream alone.				Per cent. 97.85					

TABLE 5.
Results of Digestion Experiment No. 2.

Lab. No.	Material.	Weight, total material.	Weight, water-free material.	Weight, protein.	Weight, fat.	Weight, carbo-hydrates.	Weight, ash.	Energy	
		Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	in total food	in evaporated cream
168	Evap. Crm.	4903.90	1297.08	326.11	422.23	469.30	79.44	7822	7822
169		433.05	432.14	. . .	.35	431.66	.13	1816	. . .
	Feces . . .		1729.22	326.11	422.58	900.96	79.57	9638	7822
171		56.60	49.27	15.49	4.91	16.65	14.22	207	189
Total amount digested			1679.95	310.62	417.67	884.31	65.35	9431	7633
Coefficient of digestibility of total food			Per cent. 97.15	Per cent. 95.25	Per cent. 98.84	Per cent. 98.15	Per cent. 82.13	Per cent. 97.85	Per cent. 97.58
Weight of protein in feces not digested by pepsin solution.				4.38					
Weight of protein in evaporated cream actually digested by subject.				321.73					
Coefficient of digestibility of protein in evaporated cream alone.				Per cent. 98.66					

He was allowed to drink all the water that he cared for, which, however, was very little.

Method.—The method used in carrying on these experiments was that used by chemists and taining the lampblack was given the subject the last meal before and the first meal after, the experiment.

The foods used and the undigested residues

TABLE 6.
Results of Digestion Experiment No. 3.

Lab. No.	Material.	Weight, total material.	Weight, water-free material.	Weight, protein.	Weight, fat.	Weight, carbo-hydrates.	Weight, ash.	Energy	
		Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	in total food	in evapo-rated cream
								Calories.	
168	Evap Crm.	6958.15	1840.43	462.72	599.10	665.89	112.72	11099	11099
169	Sugar . . .	383.25	381.45	. . .	.31	381.02	.12	1607	. . .
172	Bread . . .	1682.20	921.34	118.76	8.92	783.40	10.26	4073	. . .
	Total. . . .		3144.22	581.48	608.33	1831.31	123.10	16779	11099
173	Feces. . .	256.00	223.12	92.08	32.38	57.09	41.57	1084	678
Total amount digested			2921.10	489.40	575.95	1774.22	81.53	15695	10421
Coefficient of digestibility of total food			Per cent. 92.90	Per cent. 84.16	Per cent. 94.68	Per cent. 96.88	Per cent. 66.23	Per cent. 93.55	Per cent. 93.99
Weight of protein in feces derived from evap. cream not digested by pepsin solution				27.13					
Weight protein in evap. cream actually digested				435.59					
Coefficient of digestibility of protein in evap. cream alone				Per cent. 94.14					

others who are carrying on the nutrition investigations which are being made by the U. S. Department of Agriculture, under the supervision of Prof. W. O. Atwater. Careful weighings were analyzed by the methods of analysis of the Assn. of Official Agricultural Chemists. (Bull. 46, U. S. Dept. of Agriculture.) The urine from the man's experiments was carefully collected and

TABLE 7.
Results of Digestion Experiment No. 4.

Lab. No.	Material.	Weight, total material.	Weight, water-free material.	Weight, protein.	Weight, fat.	Weight, carbo-hydrates.	Weight, ash.	Energy	
		Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	in total food	in evapo-rated cream
								Calories	
168	Evap. Crm.	4930.20	1304.03	327.85	424.49	471.82	79.87	7863	7863
169	Sugar . . .	441.40	440.47	. . .	.35	439.99	.13	1852	
	Total		1744.50	327.85	424.84	911.81	80.00	9715	7863
184	Feces	46.00	40.55	12.20	3.08	15.46	9.81	166	147
Total amount digested			1703.95	315.65	421.76	896.35	70.19	9549	7716
Coefficient of digestibility of total food			Per cent. 97.68	Per cent. 96.28	Per cent. 99.28	Per cent. 98.30	Per cent. 87.74	Per cent. 98.29	Per cent. 98.13
Weight of protein in feces not digested by pepsin solution				3.49					
Weight of protein in evaporated cream actually digested by subject				324.36					
Coefficient of digestibility of protein in evaporated cream alone				Per cent. 98.94					

were made of all the food used as well as of all the undigested residues. Lampblack was used as a marker to separate the undigested residues due to the diet under experiment, from that preceding and following same. A gelatin capsule containing the nitrogen in it determined by the usual method. This last step made it possible to determine the average daily income and outgo of nitrogen in the body and also whether the body was drawing on its own store of nitrogen or using

that contained in the food used. The results brought out the interesting fact that the nitrogen in the food not only supplied all that was necessary for the usual wear and tear of the body, but also in addition, in each experiment, it enabled the subject to store up nitrogen in his body. The average amount for the twelve days was equivalent to 8.93 grams, or about one-third ounce of protein per day.

In the case of the child each experiment covered one week—in that of the man, four days. The subjects were weighed at the beginning and at the close of the experiment. The child showed an average gain during each experiment of nearly one pound, which in itself is a very good showing. The man lost a little in weight during each experiment, most of which is attributed to a sudden change in diet. Both remained in good health and showed no digestive irregularities.

Woods & Merrill (Bull. 143, Off. of Exp. Stations, U. S. Dept. of Ag., p. 58) was used. This consisted in treating the undigested residues with artificial gastric juice, filtering off the undissolved portion and determining the amount of protein which was actually digested by the body. The facts thus found are brought out in the tables which follow.

The energy of the food was calculated, using the factors commonly used in such calculations, the energy of fuel values for the different nutrients being as follows: protein 5.9, fat 9.3 and carbohydrates 4.2. Calories per gram respectively.

Table 3 gives the percentage composition of the fresh foods and of the air-dried foods. Tables 4 to 9 inclusive give the results of the individual experiments. Table 10 summarizes the digestibility of the total food and the availability of the

TABLE 8.
Results of Digestion Experiment No. 5.

Lab. No.	Material.	Weight, total material.	Weight, water-free material.	Weight, protein.	Weight, fat.	Weight, carbohydrates.	Weight, ash.	Energy in	
		Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	total food.	evapo-rated cream
								Calories.	
168	Evap. Crm.	6013.80	1590.65	399.92	517.79	575.52	97.42	9595	9595
169	Sugar . . .	407.70	406.84		.32	406.40	.12	1707	..
183	Bread . . .	1644.10	864.35	106.87	6.74	740.71	10.03	3804	..
	Total		2661.84	506.79	524.85	1722.63	107.57	15106	9595
185	Feces . . .	214.40	194.29	77.74	18.57	60.50	37.48	886	504
Total amount digested			2667.55	429.05	506.28	1662.13	70.09	14220	9091
Coefficient of digestibility of total food			Per cent. 93.21	Per cent. 84.66	Per cent. 96.46	Per cent. 96.49	Per cent. 65.16	Per cent. 94.13	Per cent. 94.75
Weight of protein derived from evaporated cream, present in feces and not digested by pepsin solution				27.86					
Weight of protein in evaporated cream actually digested by subject				372.06					
Coefficient of digestibility of protein in evaporated cream alone				Per cent. 93.03					

The digestibility of the total food was found by dividing the total amount of each nutrient digested by the total weight of each respective nutrient in the total diet. The digestibility of bread and sugar have been quite exhaustively studied, so that by correcting for the amount of undigested matter due to these foods, it was possible to arrive at the digestibility of the evaporated cream alone.

Metabolic Products.—The feces contained in addition to the undigested residues due to the food, certain substances termed “metabolic products.” These consist of residues of the digestive juices, bits of the lining of the alimentary canal, etc., and most of them contain nitrogen, like protein.

Several methods have been proposed for determining these metabolic products. In these experiments one of the methods recommended by

energy in both the total food and in the evaporated cream alone. Table 11 gives the digestibility of the protein of different kinds of milk and of evaporated cream as determined by different methods.

Digestion Experiment No. 1. Kind of food.—Evaporated cream diluted with water and sweetened with cane sugar. Subject.—M. E. C., girl 13½ months old. Weight.—At beginning 23½ lbs.; at end 25½ lbs. Duration.—Seven days, Dec. 30, 1904, to Jan. 5, 1905. (Table 3.)

Digestion Experiment No. 2. Kind of food.—Evaporated cream diluted with water and sweetened with cane sugar. Subject.—M. E. C., girl, fourteen months old. Weight.—At beginning 25 lbs.; at end 25½ lbs. Duration.—Seven days, Jan. 10 to 16, inclusive, 1905. (Table 4.)

Digestion Experiment No. 3. Kind of food.—Evaporated cream, cane sugar and white bread.

TABLE 9.
Results of Digestion Experiment No. 6.

Lab No.	Material.	Weight, total material.	Weight, water-free material.	Weight, protein.	Weight, fat.	Weight, carbo-hydrates.	Weight, ash.	Energy in total food	
		Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Calories.	in évap- orated cream
168	Evap. Crm.	6857.30	1813.75	456.01	590.41	656.24	111.09	10936	10936
169	Sugar. . . .	505.60	504.53	. . .	.41	503.98	.15	2120	. . .
191	Bread. . . .	1800.00	984.60	131.04	9.00	861.06	13.50	4347	. . .
	Total		3302.88	587.05	599.81	1991.28	124.74	17403	10936
190	Feces.	250.90	216.48	90.85	21.78	57.58	46.37	981	543
Total amount digested			3086.40	497.20	578.03	1933.70	78.37	16422	10393
Coefficient of digestibility of total food			Per cent. 93.45	Per cent. 84.52	Per cent. 96.37	Per cent. 97.18	Per cent. 97.18	Per cent. 62.83	Per cent. 95.03
Weight of protein derived from evaporated cream present in feces and not digested by pepsin solution.				30.47					
Weight of protein in evaporated cream actually digested by subject.				425.54					
Coefficient of digestibility of protein in evaporated cream alone.				Per cent. 93.32					

TABLE 10.
Digest bility of Total Food and Availability of Total Energy in Entire Food and in Evaporated Cream alone.

EXPERI- MENT NO.	SUBJECT.	KIND OF FOOD.	COEFFICIENT OF DIGESTIBILITY OF TOTAL FOOD.					AVAILABLE ENERGY	
			Total Solids.	Protein.	Fat.	Carbohy- drates.	Ash.	in total food	in evap. cream
			Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1.	Girl.	Evaporated Cream and Sugar	95.53	92.73	98.28	96.89	76.36	96.63	96.04
2.	Girl.	Evaporated Cream and Sugar	97.15	95.25	98.84	98.15	82.13	97.85	97.58
4.	Girl.	Evaporated Cream and Sugar	97.68	96.28	99.28	98.30	87.74	98.29	98.13
Average.		Three Experiments .	96.79	94.75	98.80	97.78	82.08	97.59	97.25
3.	Man.	Evaporated Cream, Bread and Sugar. .	92.90	84.16	94.68	94.88	66.23	93.55	93.99
5.	Man.	Evaporated Cream, Bread and Sugar. .	93.21	84.66	96.46	96.49	65.16	94.13	94.75
6.	Man.	Evaporated Cream, Bread and Sugar. .	93.45	84.52	96.37	97.18	62.83	94.36	95.03
Average.		Three Experiments .	93.19	84.45	95.84	96.85	64.74	94.01	94.59

TABLE 11.
Digestibility of the protein of different kinds of milk and of evaporated cream as determined by different methods.

Kind of Milk.	No. of experiments.	Artificial Digestion.	Natural Digestion.	Natural Digestion with correction obtained by pepsin method.	Subject.
Evaporated Cream.	3	. . .	94.75	98.48	Girl
Evaporated Cream.	3	. . .	84.45	93.50	Man
Evapo ated Cream.	3	98.89	. . .	. . .	. . .
Raw Milk	3	96.50	. . .	. . .	. . .
Pasteurized Milk.	3	98.76	. . .	. . .	. . .
Boiled Milk	3	98.40	. . .	. . .	. . .

Subject.—J. C., man, thirty-two years old. Weight.—At beginning, 171 $\frac{3}{4}$ lbs., at end, 170 lbs. Duration.—Four days, Jan. 11 to 14, 1905. During this experiment the subject eliminated 4,472.85 grams urine, containing 73.30 grams of nitrogen. The feces contained 14.73 grams and the total food 93.04 grams of nitrogen. This makes a daily gain to the body of 1.25 grams of nitrogen to 7.81 grams of protein. (Table 5.)

Digestion Experiment No. 4. Kind of food.—Evaporated cream diluted with water and sweetened with cane sugar. Subject.—M. E. C., girl, fourteen months old. Weight.—At beginning 25 $\frac{1}{2}$ lbs.; at end 26 lbs. Duration.—Seven days, Jan. 11 to 17, inclusive, 1905. (Table 6.)

Digestion Experiment No. 5. Kind of food.—Evaporated cream, cane sugar and white bread. Subject.—J. C., man, thirty-two years old. Weight.—At beginning 175 lbs.; at end 170 lbs. Duration.—Four days, Jan. 26 to 29, 1905. During this experiment the subject eliminated 4,347.15 grams of urine containing 60.74 grams of nitrogen. The feces contained 12.44 grams and the total food 81.09 grams of nitrogen. This makes a daily gain to the body of 1.98 grams of nitrogen, corresponding to 12.38 grams of protein. (Table 7.)

Digestion Experiment No. 6. Kind of food.—Evaporated cream, cane sugar and white bread. Subject.—J. C., man, thirty-two years old. Weight.—At beginning 173 lbs., at end 171 lbs. Duration.—Four days, Feb. 8 to 11, 1905. During this experiment the subject eliminated 4,698.90 grams of urine containing 75.18 grams of nitrogen. The feces contained 14.54 grams and the total food 93.93 grams of nitrogen. This makes a daily gain to the body of 1.05 grams of nitrogen, corresponding to 6.56 grams of protein. (Table 8.)

Brief Historical Review.—Considerable research work has been done to determine the digestibility of different forms of milk by means of healthy subjects. A very brief review of the most important of these investigations would be of value at this time. (Tables 9 to 11.)

Hübner in Munich in 1876 found the undigested organic matter in a whole milk diet to amount to 5.4 per cent. of the total amount present in the milk used. He also concluded from his studies that young children digest milk more completely than adults.

Forster (*Zeits. f. Biologie*, 15, 1879, p. 135) found that 6.4 per cent. of the total solid matter in milk was undigested by a nursing child.

Prausnitz (*Zeits. für Biologie*, 1889) made studies with a man, using sterilized milk in his work. He concluded that the milk was very digestible and was one of the most useful, convenient and economical sources of protein.

Lange (*Jahrb. Kinderheilk.*, 39, p. 233) concluded that the nitrogen of cow's milk when diluted with milk sugar solution and sterilized is almost as thoroughly assimilated as that of mother's milk.

Listov (Inaug. Diss., St. Petersburg, 1892, p. 45) by studies with healthy adults, found that with sterilized milk 91.8 per cent. and with raw milk 93.6 per cent. of the protein was assimilated by the body.

Bendix (Am. Ins. Pasteur, Vol. 9, 1895, p. 362) studied the digestibility of boiled and sterilized milk by means of children about two and a half years of age. He found as a result of his work that with boiled milk 89.53 per cent. of the protein was digested and with pasteurized milk 89.40 per cent.

Koplik (*N. Y. Med. Journal*, No. 15, 1895, p. 455) found with a child fed upon sterilized milk that 95.7 per cent. of the protein was digested; when fed upon pasteurized milk 95.4 per cent. He reports but few results.

Atwater (Conn. Storrs Station Rept. 1896, p. 163) by studies with a man placed upon an entire fresh milk diet found 91.53 per cent. of the protein was digested.

Conclusions.—As a result of the foregoing the following conclusions seem fairly well justified:

1. The protein in evaporated cream digests a little more rapidly when treated with artificial gastric juice than does that of raw, pasteurized or boiled milk. The protein in evaporated cream precipitates in a fine, flaky condition, whereas that of raw milk is inclined to be more in the form of a lumpy curd.

2. The protein in evaporated cream is almost entirely soluble in artificial gastric juice. Its total digestibility by this method compares very favorably with that of raw, pasteurized and boiled milk. The small difference found was in favor of the evaporated cream.

3. By means of natural digestion experiments with a child and with a man, the child was found to digest evaporated cream a little more completely than did the man. As a result of three experiments with each subject, it was found that in the case of the child that only 3.31 per cent. and in the case of the man only 6.81 per cent. of the entire solid matter of the food remained undigested. Forster (just quoted) found 6.4 per cent. of the total solids of the milk of a nursing child to be undigested.

4. The total digestibility of the protein in evaporated cream, after making correction for the metabolic products in the feces, in the case of the child was found to be 98.48 per cent., or very nearly what was found by means of artificial gastric juice, namely 98.89 per cent. With the man it was found to be 93.10 per cent. Both of these values are highly satisfactory for evaporated cream.

5. The butter fat and milk sugar were both very completely digested and assimilated by the two subjects. The girl digested 98.80 per cent. of the fat and 97.78 per cent. of the sugar. The man digested 95.84 per cent. of the fat and 96.85 per cent. of the sugar.

6. The child digested nearly 18 per cent. more

of the mineral matter than did the man. This accords with the accepted theory that a child requires more mineral matter in proportion to its body-weight than does an adult, because its bones are growing and developing.

7. The total energy or fuel value of evaporated cream is almost entirely available to the body. The child used 97.25 per cent. and the man 94.59 per cent. of the total energy contained in the evaporated cream which they used.

8. The health of both subjects was normal during the experiments. The child gained in weight, an average of about one pound a week during the three experiments and relished its diet. The man lost in body-weight but gained in protein during all of the experiments to the amount of nearly one-third ounce of protein per day.

9. Evaporated cream, like other forms of pure milk, is an economical article of diet because its nutrients are practically all available to the needs of the body.

THE DUODENAL ULCER, BY ONE OF ITS VICTIMS.¹

BY FREDERICK K. COOKE, M.D.,

OF DURHAM, N. C.;

FORMERLY DEAN AND PROFESSOR OF ANATOMY IN THE WAKE FOREST COLLEGE SCHOOL OF MEDICINE; FELLOW OF THE NORTH CAROLINA ACADEMY OF SCIENCE; MEMBER OF THE AMERICAN MEDICAL ASSOCIATION; THE NORTH CAROLINA STATE MEDICAL ASSOCIATION, ETC.

BOAS has said, and correctly so, that of all ulcerative processes of the gastro-intestinal tract the duodenal ulcer demands the most careful consideration, because of its anatomical position, obscure symptomatology and diagnostic signs, and the serious complications which may develop during its course.

Unfortunately, the great majority of writers have spoken too freely on the extreme rarity of this disease, especially in our country, consequently it has not received the consideration it justly deserves. This fact was brought home to me last August. While I freely admit that it is by no means a frequent disease, still there can be no doubt, as I hope to prove, that it is not as infrequent as is generally supposed. Moynihan¹ reports 51 cases with operation occurring within his own practice from January, 1900, to September, 1904. Of these there were seven perforations (with 2 deaths), 22 associated with gastric ulcer (with 1 death), 23 with duodenal ulcer alone (with 1 death). Mayo² reports about the same number of cases.

What do these figures go to prove? First, that the relative frequency of duodenal to gastric ulcers is much greater than text-books and other statistics show; and second, that the association of the two is quite frequent.

Site.—It is usually confined to the first or oblique portion of the duodenum, seldom in the perpendicular or descending, very rarely in the transverse. In Collins's³ 262 collected cases, perforation occurred within two inches of the

pylorus 242 times, 14 times in the descending portion, and 6 times in the transverse. Perry and Shaw⁴ found that in 141 cases it occurred 123 times in the first, 16 times in the second, and 2 times in the third. In Schwartz's⁵ case the perforation was just below or on a level with the ampulla of Vater. In Moynihan's 51 cases, all the perforations,⁷ and 43 of the chronic cases were in the first portion, only 1 being in the second. From these figures and others we may safely say that ulcers in the first portion of the duodenum are ten times more frequent than in the second.

Number.—Usually solitary, but may be multiple. In one of Moynihan's recent cases, where perforation had taken place on the anterior wall, immediately opposed to it on the posterior was another similar in size and shape. Moynihan was also the first to call attention to the association of duodenal and gastric ulcers, in his paper before the Clinical Society of London, in 1902. In his series of 44 cases, 22 were associated with gastric ulcer (50 per cent.); Mayo's per cent. is a little higher. This he attributes to the excess of HCl accompanying gastric ulcer. However, Howard⁶ states that in 82 consecutive cases of gastric and duodenal ulcers occurring at the Johns Hopkins Hospital, hyperchlorhydria was present in only 26.4 per cent. This is quite contrary to the statements of Mayo, Riegel and others. Mayo, in a recent paper, says, "two facts are prominent, (1) that 75 per cent. of the gastric ulcers lie in the grinding apparatus of the pyloric end, and (2) that sometimes in the history of the ulcer, and in the majority of cases at all times, there is a relative increase in the secretion of hydrochloric acid, and, whether cause or effect, this effect is a most important etiological factor."

To recent surgery upon the stomach and gall-bladder must be given the credit of establishing the important point that gastric ulcers are not always solitary—quite the reverse of what the various text-books claim—and that duodenal are associated with gastric ulcers in about one-half of all cases.

Location of the Ulcer.—By far the most frequent seat is on the upper portion of the anterior wall. Oppenheimer⁷ cites 15 cases of perforation, 11 of which occurred on the wall, 3 on the posterior, and 1 on the superior. In Collins's 119 cases of perforation in the first portion, 68 were on the anterior wall, 39 on the posterior, 10 on the superior, and 1 on the inferior. In 8 perforations of the second portion, 5 were on the internal wall, 2 on the posterior, and 1 on the external. The position of the ulcer is of great surgical importance. The anterior perforations are not so likely to be walled off, therefore the intestinal contents escaping into the general peritoneal cavity produces a rapid general peritonitis.

Etiology.—In my previous remarks I have not attempted to offer anything new, but rather to

¹ Read before the North Carolina State Medical Society.

sum up the results of the most recent investigations, both in this country and abroad. I shall now present my own theory in regard to the etiology of the duodenal ulcer and its relation to the gastric.

Sex.—It is much more frequent in males, the ratio being 4 to 1 (Osler), 5 to 1 (Mayo), 6 to 1 (Weir), 5 to 1 (Collins), 6 to 1 (Perry and Shaw), 2.5 to 1 (Mayo and Graham), whereas Moynihan's was much less. In his 51 cases there were 32 males and 19 females. If statistics from the various hospitals be true in regard to the greater frequency of gastric ulcer in women, the above figures are interesting, especially when we recall the fact that the pathogenesis of the duodenal and gastric ulcer is said by the most eminent authorities to be identical.

Age.—A duodenal ulcer may occur at any age, even in infancy. T. D. Lister and Spiegelberg have each observed a duodenal ulcer in an infant three days old. Chvostek, in 87 post-mortem examinations in children under ten years of age, found duodenal ulcer in 5. Oppenheimer has reported 15 cases of melena neonatorum. Similar cases have been reported by Henoch, Zerschwitz and Dusser. Collins's table of 297 cases is the most complete.

Under 10 years of age.....	42 cases
Between 10 and 20 years.....	24 cases
Between 30 and 40 years.....	52 cases
Between 40 and 50 years.....	46 cases
Between 50 and 60 years.....	41 cases
Between 60 and 80 years.....	28 cases
Between 80 and 95 years.....	3 cases

Race.—I could find no figures on this point.

Nationality.—It is certainly more frequent in Germany and England than in America. In the United States it is much rarer in the South than in the New England States and California.

Occupation.—Occupation plays an unimportant rôle. However, it might be well to say that an indoor life predisposes to ulcer more than an outdoor life.

Family History.—Heredity, so far as I have been able to see, plays little or no part. In the majority of cases there was no history of stomach trouble.

Personal History—Previous Stomach Trouble.—Unfortunately the statistics are not satisfactory, but we may feel safe in saying that a large per cent. of all cases have had, previous to the symptoms of ulcer, some disturbance of digestion, as discomfort after meals, sour eructation and pyrosis.

Diseases of the Heart and Blood Vessels.—It is possible for arteriosclerosis to play some part. It predisposes to thrombosis. By palpation of the peripheral vessels clinically, and noting the macroscopic changes at post-mortems, it was seen to be present in 48.8 per cent. of the series of gastric and duodenal ulcers occurring at the Johns Hopkins Hospital; to a very marked degree in 22 per cent.

Endocarditis.—This also deserves some consideration, as it may give rise to embolism.

Bright's Disease.—This is considered by many as an important etiological factor. The supporters of this theory claim that the necrotizing effect of urea, or its derivative, ammonium carbonate, may manifest itself in the first portion of the duodenum as well as in the lower portion of the bowel.

Chlorosis is a most important factor in gastric ulcer, particularly in young girls. It was present in a marked degree before the ulcers developed in 73 per cent. of Fenwick's cases. Osler says that "anemia and chlorosis predispose strongly to gastric ulcer, particularly in women, and in association with menstrual disorders."

Syphilis.—It might be well to also mention syphilis. There is a possibility of a specific endarteritis.

Burns.—The most generally accepted factor in the production of duodenal ulcers is external burns. Holmes, in 125 cases of external burns, reports 16 cases; Perry and Shaw, in 149 cases, found 5 duodenal ulcers; and Collins attributes 38 of his 297 cases to the same cause. The time of the appearance after the burn is from one day (Curling) to one or two weeks (Holmes).

Hunter's theory falls short in making clear the relation between cutaneous burns and duodenal ulcers. He injected toluylenediamin into animals, and this so changed the composition of the bile that ulcers were formed in the duodenum. He argued that, in some way, changes in the skin, due to the inflammation, produced the same changes in the bile as did the toluylenediamin. In his experiments, however, the ulcers were below the entrance of the bile duct—just the reverse of what is usually the case of burns.

The most recent literature on the subject says the ulcer is due to a septic infarct. Lockwood's experience seems to give some weight to the above argument, since in his 138 cases of burns treated with all possible antiseptic precautions, there occurred only one ulcer. But let me ask this question: Why should an infarct be formed only in the duodenum? Why are other organs not affected? Are there any local peculiarities of circulation in the duodenum, particularly the first portion? To me the above theory is a poor one, and absolutely without any foundation.

It is a well-established fact, by the modern theories of immunity, that intestinal parasites are protected from the digestive ferments in which they live, by antidigestive ferments found in their skin. It has also been proven that the alimentary walls are able to protect their tissues from self-digestion (autolysis) by certain antibodies contained in their epithelial cells. Any diminution of these bodies may, and a marked diminution does result in autolysis, or self-digestion. Now, here is the point I wish to make. It is conceivable that in external burns, toxic substances are absorbed and are specific and destructive to the antibody in the epithelial cells

of the duodenum. As soon as the antibodies are diminished to a sufficient quantity, an ulcer is the result.

Naturally the question of Lockwood's cases arises. Why was it that there was only one ulcer when antiseptic precautions were taken? This does not in the least shake my belief in the theory I have advanced. The toxin due to the sepsis probably combines with the other toxin, and may assist or even be necessary to bring about a reduction of the antibodies in the epithelial cell of the duodenum—the association of toxins.

Among the predisposing causes, the corrosive action of the hydrochloric acid is one of the most important. Ewald succeeded in producing duodenal ulcers in animals by introducing hydrochloric acid into the stomach. Von Mering and Moritz have also proven by experiments that the stomach promptly and copiously expels water into the intestine when an irritant such as alcohol is introduced, thereby protecting itself from injury by concentrated solutions or irritants. It remains yet to be proven that the duodenum possesses such a property.

Any disproportion between the composition of the blood and gastric juice may give rise to ulcer, either in the stomach or duodenum. How does it do this? By diminishing the antibodies in the epithelial cells. The disproportion may be due to two causes, viz., anomalies in the composition of the blood, as chlorosis, anemia, suppression of menses, etc., or an increase of secretion of the gastric juice, particularly the hydrochloric acid. In case of the former it is a matter of lowered resistance; in the latter, an increased virulence.

This explains the greater frequency of gastric ulcers in women, and duodenal in men. It also accounts for the fact that gastric ulcer, which is more common in the female, is usually not associated with hyperchlorhydria, whereas in the male the reverse is the case.

Symptoms and Diagnosis.—The most remarkable fact is that a duodenal ulcer may give rise to no symptoms until perforation takes place. Such a latent course is by far more frequent than in gastric ulcer.

Subjective.—Pain may be slight, producing only a feeling of uneasiness in the epigastrium. again, it is intense, of a burning, gnawing, boring character, which may radiate downward, toward the sides, or upward toward the right shoulder. This was true in my own case. When severe, it was almost always a little to the right of the middle line, about on the level with a prolongation of the parasternal line, two centimeters below the gall-bladder.

I agree with Moynihan and others that the time of the onset of pain after food affords valuable information in our diagnosis. If the pain does not make its appearance until several hours after a meal, the ulcer is either at the pylorus or very near it. The pain, too, is always relieved by the presence of food in the stomach—a glass

of milk, or, better still, a boiled egg. The food relieves the pain either by reflexly closing the pylorus, thereby preventing the escape of the stomach contents, or by diluting the hydrochloric acid which is present in an excessive amount.

Frequently it is associated with a gastric ulcer, in which case the diagnosis is more difficult. Here we would have pain coming on shortly after food is taken, which gradually becomes easier, to return the second time with greater severity.

Objective.—The typical point of tenderness should be along a continuation of the parasternal line, coinciding with the area of pain, about two centimeters below the gall-bladder. In my own case this was not noticeable all the time. Vomiting may or may not be present. It is purely of a reflex nature and occurs only when the pain is very severe (about 17 per cent.). However, it is of great diagnostic value when coming on hours after meals with bile and blood. Jaundice is rare, but may be present. Hemorrhage, according to Weir, occurs in one-third of all non-perforating ulcers. Oppenheimer found it in 50 per cent. of his. Others place the figures even higher. It may be very small, or so profuse as to produce death from shock or collapse. If in a sufficient quantity, the stools have a tarry color. The hemorrhage, however, may sometimes be fresh, and, if associated with hemorrhoids, misleading. The amount is usually much more profuse than in gastric hemorrhage on account of the large size of the vessels encountering in this region.

Prognosis.—In Collins's 262 cases perforation occurred 181 times (69 per cent.). However, this seems to be too high. Of these 181 perforations, there were 125 cases of general peritonitis, all of which resulted fatally. In Moynihan's 51 cases, you remember, there were only seven perforations with two deaths. Frequently, adhesions take place between the duodenal wall and adjacent viscera, viz., the liver, pancreas, etc. Then, too, the ulceration may extend into the aorta, superior mesenteric vein, hepatic artery, and portal vein. If the perforation is on the posterior wall, which, fortunately, was true in my own case, the intestinal contents may escape into the lesser peritoneal cavity, producing a subphrenic abscess. However, such is not the usual occurrence. The perforation in the vast majority of cases is through the anterior wall into the general peritoneal cavity, producing all the symptoms of shock and collapse, followed by a fatal peritonitis.

Treatment.—Absolute rest in bed; restricted diet; alkalies to counteract the acidity of the gastric juice. If there is not immediate improvement, or if there is any hemorrhage, while under proper treatment, I should say the case becomes a surgical one. In the hands of a competent surgeon, gastro-enterostomy is by far the safest plan.

If my theory is right, it is only a question of

time when the work which is now being done on immunity will take all these cases from the surgeon's knife.

REFERENCES.

1. *Lancet*, February 11, 1905.
2. *St. Paul Medical Journal*, February, 1904.
3. *Thésé de Paris*, 1894.
4. *Guy's Hospital Reports*, 1894.
5. *Ulcère perforante du duodenum*. *Bullet. et. Mem. Soc. de Chirurg.*, January, 1898.
6. *The American Journal of the Medical Sciences*, December, 1904.
7. *Das Ulcus pepticum duodenale*, *Thésé*, 1891.
- Mayo: *Annals of Surgery*, December, 1904, Vol. XV.
- Mayo: *Annals of Surgery*, July, 1903.
- Graham and Mayo: *Transactions of Am. Surg. Association*, 1904, Vol. XXII.
- Moynihan: *Annals of Surgery*, 1904.
- Weir: *Transactions of Am. Surg. Association*, May, 1900.
- Bloodgood: *International Clinics*, April, 1904.
- Osler: *Practice of Medicine*.
- Boas: *Diseases of the Intestines*.

PNEUMOTHORAX, WITH A REPORT OF A CASE COMPLICATING A LOBAR PNEUMONIA.

BY WILLIAM RIDGELY STONE, A.B., M.D.,

OF NEW YORK;

ASSISTING VISITING PHYSICIAN, CORNELL UNIVERSITY MEDICAL COLLEGE DISPENSARY.

PNEUMOTHORAX, by the average practitioner, is commonly regarded as a diseased condition frequently met with; but those who will carefully study the existing statistics upon the subject will find that such is not the true state of affairs. David W. Finley, in Allbutt's "System of Medicine," says: "Although the causes leading to the production of pneumothorax are numerous, the disease itself is comparatively rare." In Saussier's 131 cases, and in the statistics of all others, no mention is made of the occurrence of a pneumothorax during the existence of an attack of lobar pneumonia.

A condition of pneumothorax is most often met with in pulmonary tuberculosis; 80 to 90 per cent. of all cases being of this origin. Even in tuberculosis its occurrence is not remarkably frequent. The various authorities place its frequency as follows: West, 5 per cent.; Eichhorst, 5 per cent. in 300 cases; Gutman, 4.2 per cent. in 2,200 cases; Weil, 10 per cent. in 355 cases; Biach, in 58,731 cases of pulmonary tuberculosis, found it but 435 times, or less than 1 per cent. Fussell and Riesmann find that it may occur anywhere from 8 per cent. to 1 per cent. in all cases of phthisis.

Among the other conditions which have been cited as an inciting cause of the complication are: Empyema, gangrene of the lung, abscess of the lung, rupture of an infarct in the lung during organic heart disease, perforation of the pleura through the diaphragm, perforations by wounds in the chest, local disease in the pleura, such as new growths, pus, etc.; erosions of the bronchi in septic pneumonia of the bronchial variety (Osler) may also cause the condition.

A larger proportion of the cases are met with between the ages of thirty and forty. It is more common in males than in females because the former exert their muscles more vigorously than females. Dyspnea is not often present and cyanosis is not constant. Pain is always noted at the

onset of the attack, though it may not be severe, and as a rule does not last more than thirty-six hours.

The most common of the inciting causes are: sudden spasmodic attacks of coughing, and the strain in the lifting of heavy weights. There is no relation between the amount of lung involvement by tuberculosis or other disease, and the occurrence of the lesion. As has been before remarked, pneumonia is but seldom followed or complicated by a pneumothorax, but the following case, which occurred in the writer's practice during the past winter, is believed to be unique, and illustrates a condition which must of necessity prove fatal:

Case.—Henry T., a large, robust man, aged fifty-four years, had for years regularly imbibed large amounts of alcohol in the form of whisky and wine. For several winters he had had attacks of bronchitis, which lasted throughout the season in spite of the best medical attention. In June, 1904, he was seized with a severe chill and pain in the left side. On the following day he was so prostrated that he was compelled to remain in bed and to summon his physician. Examination revealed a perfectly frank lobar pneumonia involving the whole of the left lower lobe of the lung. The temperature at that time was 104.3° F., and there was considerable cyanosis and some delirium.

The disease ran a perfectly uneventful course until the evening of the seventh day, when the temperature suddenly rose to 106.2° F., and the patient became wildly delirious. By means of cool sponges the temperature fell to 100° F. at the end of four hours, and the patient passed the rest of the night most comfortably. The following morning at ten o'clock the temperature had dropped to normal and remained there.

On the morning of the tenth day, while the writer was visiting the patient, and had only just bid him "Good-morning," and was about to leave the sick-room, the patient was seized with a sharp, though not particularly hard, fit of coughing. In the midst of this he clapped his hand to his left side and cried out with pain. Dyspnea developed very rapidly and became most marked. Shortly after this, cyanosis appeared and became intense. Morphine to a grain and a half was administered before the pain could be controlled, but this failed to induce sleep.

Examination of the chest showed an almost complete tympany on percussion over the whole left side of the thorax. On auscultation, the voice sounds had lost the intensity, which had been present over the consolidated area, but there was distinct amphoric breathing. Succussion could not be elicited. The coin sound was very distinct over the whole left side. No evidence of fluid could be made out in the pleural cavity.

At this time Dr. S. A. Brown, who was called in consultation on the case, confirmed the diagnosis of a pneumothorax. The patient's chest

was strapped with adhesive plaster and he was made fairly comfortable, though all of the pain and dyspnea were not lost. Cyanosis still persisted. In twelve hours the temperature had risen to 103.6° F., and delirium rapidly returned, accompanied by low muttering and picking at the bedclothes. The pulse was strong, but very rapid, with fair tension. From this time on the patient's condition became worse and pulmonary edema developed. Death took place about forty hours after the development of the pneumothorax.

This interesting case, with the production of a pneumothorax, teaches us that there may be a new and hitherto unmentioned fatal mode of termination for a frank pneumonia. At the patient's age the lung tissue had undoubtedly become emphysematous, and this change was most probably the underlying cause in the production of the pneumothorax at the fit of coughing. Hamilton, in the *Montreal Medical Journal*, Vol. xix, 1898, has reported a case where pneumothorax was followed by a pneumonia, but the writer has been unable to find a single reference in the literature where a perfectly frank pneumonia was ever followed by a pneumothorax.

LITERATURE.

- Itard: Diss. sur le pneumothorax, Paris, 1803.
 Levy: Archiv f. Exper. Path. u. Pharm., 1895, p. 335.
 Biach: Wien. med. Woch., 1880, p. 37.
 May and Gebbart: Deut. Archiv f. klin. Med., 1898, Vol. LXI, p. 334.
 Eichhorst: Handbuch der speciellen Path. und Therap., 1885.
 West: Trans. London Clin Soc., 1886, Vol. XIX, p. 227;
 loc. cit., 1887, Vol. XX, p. 153; London Lancet, 1884, Vol. I, p. 791.
 Adams: Boston Med. and Sur. Jour., 1886, p. 397.
 Aron: Deut. med. Woch., 1896, p. 257.
 Zahn: Virchow's Archiv, 1890, Vol. CXXIII.
 Hamilton: Montreal Med. Jour., 1898, Vol. XXVII.
 Fussell and Riesmann: Am. Jour. of the Med. Sciences, Aug., 1902.

EXTRAVISCERAL RUBBER LIGATURE IN GASTRO-ENTEROSTOMY.

BY R. C. COFFEY, M.D.,

OF PORTLAND, OREGON;

MEDICAL DIRECTOR OF AND SURGEON TO NORTH PACIFIC SANATORIUM.

In the December number of *Northwest Medicine*, the writer published an article on an extravisceral silk ligature in entero-enterostomy. Two patients had been operated upon in which entero-enterostomy had been done. One was done to correct the vicious circle following a gastro-enterostomy, and the other was performed in connection with a primary gastro-enterostomy. The results were satisfactory. In the article I also reported experiments upon both dogs and hogs, with good success and good results, one of which was illustrated in the article.

This method was very similar to the one here outlined, except that no cut was made and the silk ligature included all the coats. It was found, however, that the method could not be well applied to the wall of the stomach because of its great thickness. A friend of mine suggested that if I could remove the outside coats and leave only the mucous membrane, possibly I might be more successful. This did not prove

a success when the silk ligature was used as the pressure exerted on the stomach necessary to tie the knot could not be regulated; consequently, the mucous membrane would either be cut by the silk thread or there would not be sufficient pressure to cause necrosis.

After studying this question for some time, the idea of using a rubber band, of the kind used in drug stores for holding a wrapper on a bottle or package, came to me. Furthermore, instead of removing the coats entirely, I found that by making a circular cut down to the mucous membrane, pressure from the opposite side of the stomach or intestine would cause herniation of the mucous membrane. Ligating these two pieces of mucous membrane with rubber ligature, as will be shown, produced results which were entirely satisfactory. Thus, Fig. 1 shows an ideal result, following a gastro-enterostomy on the stomach and intestine of a pig, one week after operation. Fig. 2 shows a smaller opening two weeks after an operation, the smaller size being due, apparently, to a greater contraction of the opening during the suturing.

My results seem to show that the size of the opening depends largely on the amount of pursing of the wound by the suture in doing the sewing. Apparently the muscular edges remain where they are left when the suturing is completed. One result was a failure to cut through the stomach mucous membrane, because we used a rubber band which was too strong and was therefore not put on extreme tension, which I believe to be an absolute necessity in the operation. A very small rubber band with all the tension it will bear is much better and does less immediate damage to the mucous membrane, while it is being put on, than a large band. It will be noticed in the specimens shown that the mucous membranes are cut off squarely and abruptly. I also found in all the experiments that, no matter where the mucous membrane is tied, it apparently retracts to the level of the cut in the muscular wall.

The operation on the human subject is to be performed as follows: First, make the incision both in the abdominal wall and mesocolon in exactly the same manner as if the short loop operation were to be done with clamps or the McGraw ligature. The stomach is pushed down through the mesocolon from above, by the hand of the operator or assistant, and held there. Second, a circular button is cut with a sharp knife down to the submucous connective tissue, great care and caution being exercised not to cut the submucous plexus of vessels. It will be noted that, as the mucous membrane is approached, the muscular fibers, both in the wall of the stomach and in the button, contract, leaving quite a wide circular cut. The same thing is done with the intestine except that the button is made oblong, parallel with the axis of the intestine, in order not to encroach too much on the lumen of the intestine and also to avoid the



FIG. 1.—Opening in pig's stomach one week after operation by extravisceral rubber ligature. Exact drawing as to size and appearance of opening. Specimen lying in a dish.



Fig. 2.—Specimen opening in pig's stomach removed two weeks after operation. Small size of opening produced by pursing of wound in suturing.

larger vessels. This part of the operation is illustrated in Fig. 3. Third, pick up the button and mucous membrane gently with a wide forceps like a sponge holder, or, if preferred, with the fingers; a silk or linen thread is then laid across one side of the wound, one end being held by an assistant, the other lying loose. A rubber band of the size of No. 14 braided silk is cut in two, making of it a thread instead of a band. The mucous membrane is pulled out as far as

slipping. The method of suturing is illustrated in Fig. 5. The suture as shown is continued all the way around, and the last end is tied with the end left loose for this purpose at the starting point.

As this is all of the original part of the operation, I will show no further details lest I might complicate it, inasmuch as the rest of the operation would be done in the manner ordinarily practised by the operator. If the operation

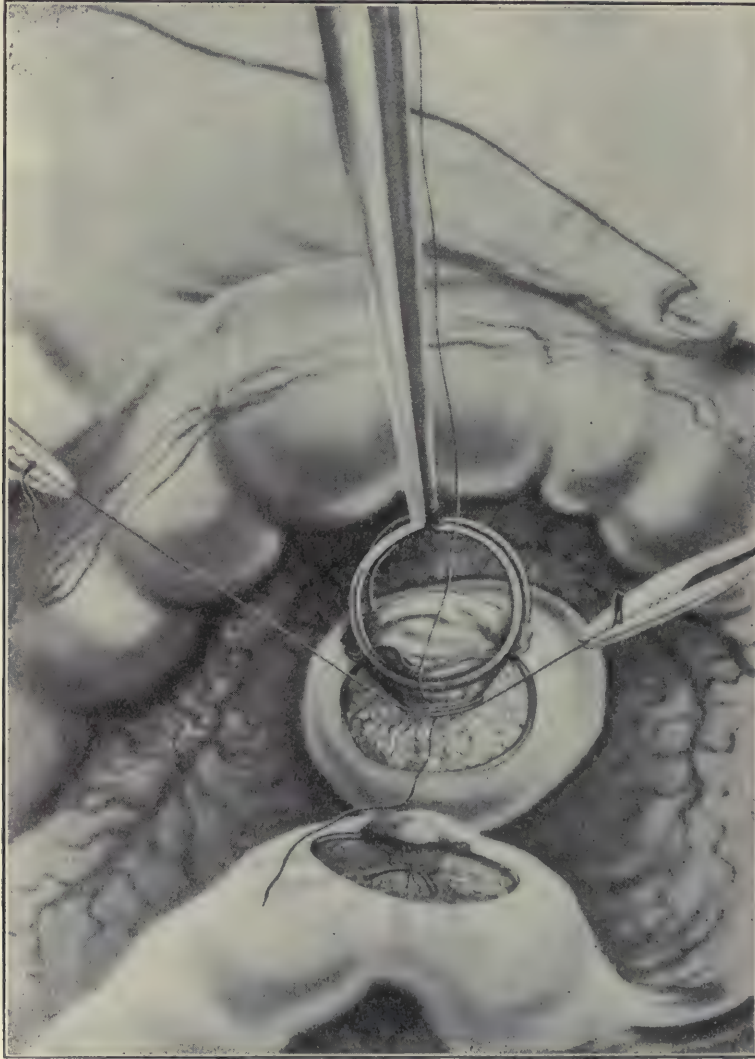


Fig. 3.—Buttons cut out down to submucous coat, showing retraction of muscular fibers from edges of wound.

possible, without tearing or injuring it, so that as big a bite as possible may be cut out. One end of the rubber string is held with a pair of forceps by an assistant, while the operator takes the other end, with or without forceps, and proceeds to wrap the rubber around the mucous membrane, including the thread, which is to tie the rubber. If the rubber is as small as it should be, ten or twenty turns should be made. The string is tied around all the rubber to prevent

proves as successful and satisfactory clinically as it has experimentally, it should present the following advantages: First, no clamps are used and no special apparatus is necessary. Second, no opening is made into the intestine or stomach at the time of the operation, hence the danger of infection is minimized. Third, it is easily and quickly done. I think, however, that the operation will not be ready for general use until more experimental work can be done and

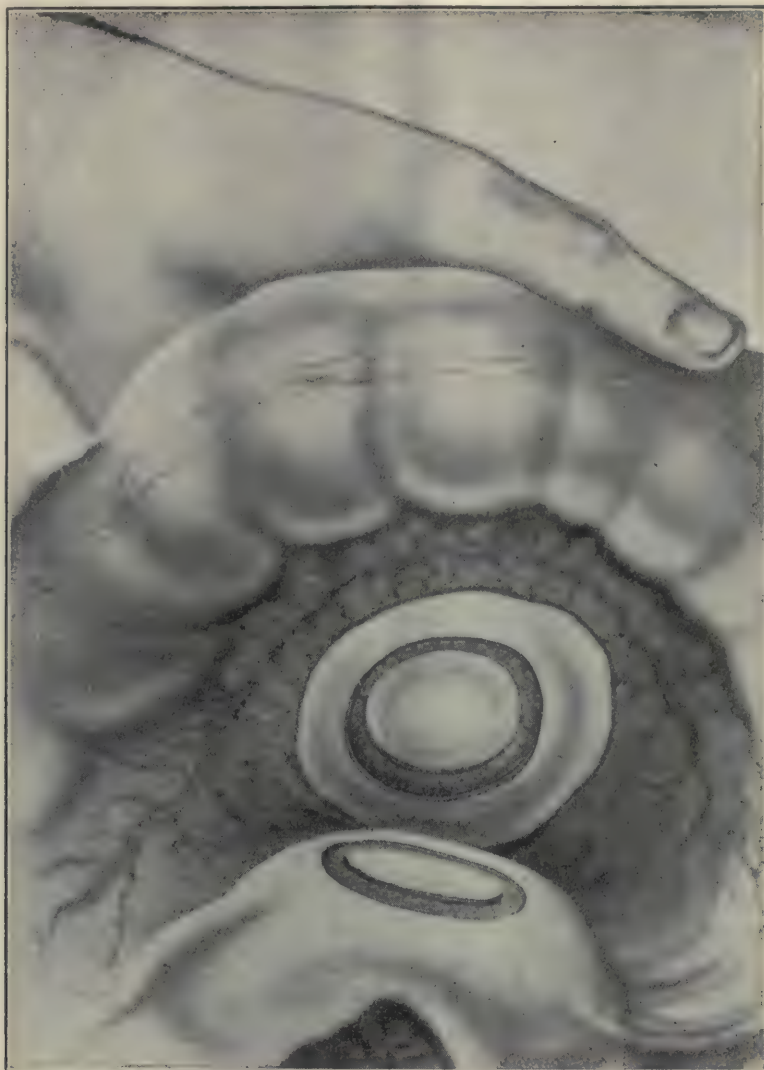


Fig. 4.—Knuckles of mucous membrane of intestine tied off by rubber ligature shown below. Rubber ligature being applied to mucous membrane of stomach above. (COFFEY.)

more accurate data obtained. As far as my work has gone with it, the results have been all that could be expected; but there may be points in perfecting the technic yet to be worked out.

The Chemical Correlations of the Functions of the Body.—In the Croonian Lectures for 1905 (*Lancet*, August 5, 1905) E. H. STARLING deals in Lecture I with the chemical control of the functions of the body. In the lowest organisms the only adaptations are those to environment, and in these cases the mechanism is almost entirely chemical. Thus food is obtained, harmful media avoided and digestion accomplished. In the lowest metazoa there is still no trace of a nervous system, and cellular coordination is determined by chemical means. In the higher metazoa the quick motor reactions are due to the nervous system, but they involve no abrogation of the more primitive chemical ones. The chemical reactions of the body can be divided into two main classes: (1) Those evoked in consequence of changes impressed upon the organism as a whole from

without; and (2) those acting entirely within the body. The first class includes reactions of the body to chemical poisons produced by bacteria or higher organisms. If it is concluded that the coordinations of the body are carried out by chemical means, then emissaries must belong to Ehrlich's second order of substances acting on the body and must fall into the same category as drugs. Chemical reactions of the body are for convenience divided into two classes, (a) those which increase the activity of an organ; (b) those which increase growth of tissue or organ. The first class is discussed. How is the respiratory center aroused to increased proportional activity to the increased metabolism of a distant muscle? A nervous path can be excluded. By experiment the path is known to be the blood and the exciting agent carbon dioxide, a product of activity common to all protoplasm which must be excreted as a condition for further cell activity. This presents a clue to the evolvment of the more complex correlations. The only other example of such a reaction is found in the extract of the suprarenal gland. The medulla of this gland is genetically part

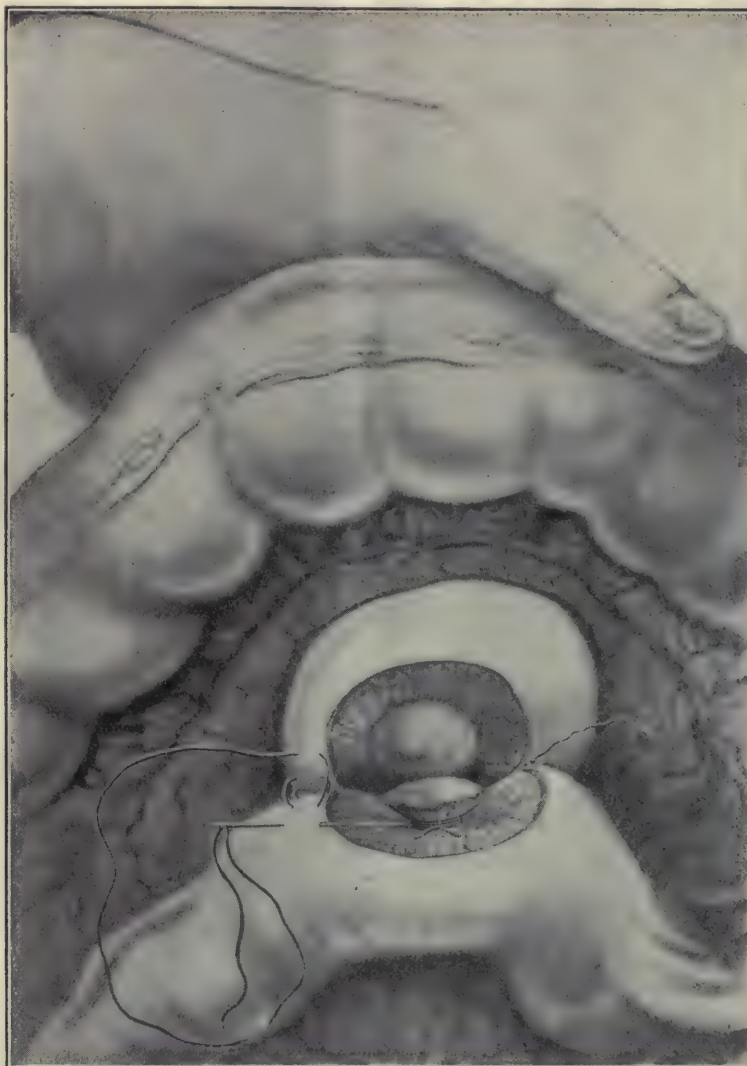


Fig. 5.—Method of suturing with a continuous suture. (COFFEY.)

of the sympathetic system, and to it the action of the secretion is apparently confined. As an antithesis to adrenalin it is found that every organ, when active, is supplied with more blood in consequence of vasodilatation. Boiled extract of organs have, when injected into the circulation, in instances produced vasodilatation of the same organ. Too much stress is not to be laid upon this. Diabetes can be artificially produced by extirpation of the pancreas, but the exact nature of this pancreatic substance has not been ascertained.

Carbohydrate Metabolism.—F. W. PAVY, in the third lecture on carbohydrate metabolism (*Lancet*, August 5, 1905), describes a theory of carbohydrate assimilation. The absorbed material passes into, and becomes a component of, the living matter. In other words, it is made to form a part of bioplasm in process of growth. In digestion it is not only necessary that large molecules be broken down to promote diffusibility, but also that they be adopted to become incorporated. The lymphocyte is considered the incorporating element. It is noted that lymphocytes in the blood increase after eating. Lymphocytes contain proteid, and proteid contains

locked-up carbohydrates. The theory that white blood corpuscles pass from lacteal to capillary by traversing the wall of the latter is discredited. The lacteal is considered nature's channel for lymph cells, all other paths being supplementary. The intestinal villi are regarded as their propagating ground, whence they traverse the lacteals acting as food carriers. The union of food and lymphocyte is one of affinity. Exception is taken to the view of Halliburton that food is first carried to, then synthesized in, the tissues. The assimilation property of lymphocytes is analogous to the phagocytic action of other white cells. Food into lymphocyte, lymphocyte into proteid, proteid into tissue may be taken as the chain. The formation of fibrinogen, globulin and albumin of the blood is a process of autolysis. When the supply of carbohydrate is large, some escapes and reaches the portal circulation. This is transmuted into glycogen, and if this process is complete it is prevented from reaching the general circulation. Glycogen is regarded simply as a cleaved off storage material. It is transported from the liver as a proteid side chain to the tissues where it is removed for subjection and utilization. Another

method of the disposal of carbohydrate is its conversion into fat. This duty is assigned to the superficial epithelial cells of the villi and to the liver cells. Conclusions drawn in regard to diabetes from this point of view are that it is the result of a wrong carbohydrate metabolism on the side of assimilation and in some cases that of breaking down as well.

PATHOLOGY AND BACTERIOLOGY.

Fate of Digestive Ferments in Intestinal Tract.—Small amounts of pepsin occur quite normally in the urine, and J. GROBER (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 3 and 4) believes that they are not derived from absorption from the intestinal lumen, but from the glands directly. The pepsin and trypsin which pass into the intestinal lumen are eventually destroyed, so that, under normal conditions, neither may be found in the feces. In diarrhea, however, first trypsin and then pepsin may be detected. The pepsin is normally destroyed by the alkaline secretion of the small intestines; the trypsin by the secretion of the large intestines. Intestinal worms possess certain specific bodies (antiferments) which protect them against the proteolytic action of the ferments.

Form of Heart Muscle Nuclei.—If the heart muscle be examined in systole and in diastole, a marked difference in the appearance of the nuclei will be observed. In the former case, they are short and broad; in the latter, much longer and more slender. Particularly long nuclei have been described as "Leistenkerne," and were supposed to indicate beginning hypertrophy of the heart. R. INADA (*Deutsch. Arch. f. klin. Med.*, Vol. 83, Nos. 3 and 4) states, however, that they merely indicate a beginning degeneration. This author also studied the effects of an artificially induced aortic insufficiency upon the condition of the aortic walls. In a series of animals, the aortic valves were punctured in the usual way, but even after months changes, which might be looked upon as beginning arteriosclerosis, could not be found. The vessel was always more tortuous than under normal conditions, but this was probably due to insufficient contraction of the vascular musculature. In two animals there were slight lesions in the aortic walls, but these were probably traumatic, and resembled in every way the changes found after

ing the structures within the bony labyrinth. The perilymph and endolymph undergoes a change in composition due to the presence of the specific germ, the blood vessels become dilated and true tissue-hypertrophy ensues. Thus extravasations of blood easily take place. The tissues become dense, bone thickening takes place, and often the semicircular canals or cochlea are partially, if not completely, obliterated. In some cases the tissues become necrotic. In rare instances the tympanic cavity has become involved by the purulent process of the internal ear breaking through the oval or round windows, thus establishing a purulent otitis media. In this disease a mild otitis media is common, but usually subsides. However, in some cases it goes on to suppuration, but this affection, though severe in some instances, cannot satisfactorily account for the profound and complete deafness in by far the greater number of cases, or for the fact that deafness is almost invariably bilateral. Vertigo and intense tinnitus are sometimes observed, which is easily explained from the condition of hyperemia in the labyrinth.

Action of Yeast on Animal Body.—The action of yeast upon the animal body is a matter of great importance, since several of the supposed cancer organisms belong to this group. F. HENKE and F. MIRONOWSKI (*Virchow's Archiv*, Vol. 181, No. 1) have infected rabbits in various ways with the yeast described by Leopold. An acute reaction was never seen, and no tumors could be found at autopsy, even though a large series of animals was employed. The *Saccharomyces neoformans* of Sanfelice, on the other hand, proved to be very virulent to animals. Tumors were formed in time, but these consisted solely of proliferated yeast cells, together with granulation tissue. No real neoplasms, in any way suggesting carcinoma or sarcoma, were encountered, even though the animals were kept under observation for many months. It is therefore extremely improbable that yeasts stand in any etiological relation to malignant neoplasms.

Congenital Transmission of Tuberculosis.—A series of interesting experiments conducted by F. F. FRIEDMAN (*Virchow's Archiv*, Vol. 181, No. 1) proves beyond doubt that tubercle bacilli may be found in the embryo, if the genital organs of the male animal are diseased. Tubercle bacilli were injected into the

male genital organs of male rabbits, seven days after castration the embryos were examined and in most cases tubercle bacilli were present. If the infection was made directly into the testicles, the findings were the same, but frequently the disease spread so widely in the male animals that conception did not take place. After intrapulmonary infection, transmission of the disease did not occur; after intracerebral infection the animals generally died too early, but when the bacilli were injected directly into the blood stream of the male, or the vagina of

female, the embryos frequently were infected. An interesting fact that the embryos, though they do not become tuberculous, despite the positive findings, are generally carried to term, and are usually healthy and well-developed. It is very likely that many infections also occurs through intercourse, particularly since the human uterus is more susceptible to tuberculosis than these animals.

The Etiology of Cancer.—After five years' study the parasitic origin of cancer M. SCHÖNEN, of Berlin (*Deutsch. Med. Rev.*, September 16, 1905) states that he has collected entirely him to regard the

former theories, particularly the anatomico-pathological theories, as fallacious and untenable in the majority of points, especially as the attacks of these pathologico-anatomical antagonists continue to take their point of departure from suppositions which have long ago been disposed of, by the author among others. These antagonists absolutely leave unexplained why the introduced epithelia should grow, and especially grow into cancerous nodules. The author has demonstrated that these epithelia, which are being introduced into the glands, are laden with parasites, and, moreover, that parasitic forms alone, much smaller than epithelia, can contrive to be largely introduced into the glands long before the presence of any epithelial cells is demonstrable therein. The supposed fact that epithelium can grow into cancer without the aid of parasites has never been proved, any more than pathological anatomy has succeeded in producing cancer artificially and histologically by non-parasitic or other experiments. For the purpose of proving the parasitic origin in experimental cancer inoculations, the author has, in all his experiments, completely destroyed the cells in the cultures. The only living and efficacious part were the parasites, and this was also proved by the examination of the preparations taken from various organs of animals. In these animals there were found in the lymphatic glands only epithelia laden with parasites (from the intestine). These parasites are to be found not only in the originally infected organ but also in various other organs, especially the liver and lung, from the largest spore cysts to the smallest forms of development that are demonstrable only in thousandfold microscopical enlargements. The effect of the parasites upon the tissues consists not only in simple inflammatory manifestations, but also, for instance, in a typical proliferation, epithelial "pearls" (concentric masses), partial foci of distinctly carcinomatous, karyokinetic proliferations, such as have never been artificially produced. The author has stated the parasite to be a cell parasite, in all the demonstrations, inasmuch as the smallest forms of the parasites produced by the author from cancer cultures positively penetrate into the cells, even into the nuclei, and here undergo their further phases of development. It was from the parasitic cultures from human cancer and the changes in the organs of animals produced by inoculation with parasites and demonstrable by corresponding staining, that the author was able to prove that the spores of the parasites, or rather their sprouts, are possessed of a characteristic chromatin design, showing, as they do, instead of a developed nucleus, two or three punctiform swellings (therefore chromatin bodies), similar to the Aleppo buttons (Delhi sores), and further that the precisely identical small parasitic elements, when properly stained, can be found in human cancer. The author remarks that the identical parasites are encountered in both carcinoma and sarcoma, also that in the origination of the various kinds of cancer it is not the parasite alone, but naturally, simultaneously, also the epithelia of the various cells and tissues generally that come in for consideration. The author states that he has already pointed out on previous occasions that, in carcinoma, not only epithelia, but also endothelia, connective tissue cells, and muscle cells, undergo proliferation, and are also capable of independent proliferation in the epithelia when changed through the influence of the parasites, as in the case of sarcoma. Another discovery, made years ago,

is the occurrence of exceedingly small but intensely motile filiform corpuscles, in both carcinoma and sarcoma parasites—similar to the observations made in the various phases of syphilis. Small foci of these filiform bodies have been found also in metastatic conditions of animals which had been inoculated with both carcinomatous and sarcomatous cultures, and which present a particularly fine picture in the lung. The best method for preparing tissue for finding the parasites is to harden carefully with alcohol, imbed in celloidin, prevent injury by section, and examine the specimens in certain aqueous saline solutions, and stain with the simplest process. This method will reveal the parasites and distinguish them from the ordinary tissue elements.

Primary Tuberculosis of the Pharyngeal Tonsil.

—For some time investigators have recognized the importance of tonsillar tissue as a channel of infection in tuberculosis. F. IVENS (*Lancet*, September 16, 1905) reports a case of primary tuberculosis of the pharyngeal tonsil associated with tuberculous cervical glands. The patient was a boy, three years of age. Family history, negative. A swelling in the neck had been noticed for some months. This increased in size, and a purulent discharge from the ear appeared. The child showed the characteristic adenoid facies. The tonsils were enlarged, and glands were felt on both sides of the neck. On the left side they had broken down. These were removed, and later the adenoids and tonsils. The pharyngeal tonsil presented no surface macroscopical lesion. Microscopic examination revealed typical tuberculous symptoms with early central caseation distributed throughout the tonsil. No bacilli, however, were found in the specimens.

Study of Leucopenia.—An abnormally low number of leucocytes has been observed by L. D'AMATO (*Zeitsch. f. klin. Med.*, Vol. 57, Nos. 3 and 4) in two cases of Banti's disease, two cases of chronic malaria and in one case of hepatosplenic syphilis. The proportion of leucocytes was normal in only one instance; in the others the multinuclear leucocytes were diminished more than the other forms. The author determined the action of various normal and pathological irritations upon the number of white cells in these cases; thus, there was a slight increase after digestion, a more marked increase after the use of vesicants. With suppuration the polynuclear cells became more numerous, but a real leucocytosis did not occur. Hemorrhage seemed to have a more pronounced effect, but even here relatively low figures were found (from 2,300 to 5,400). After faradization of the spleen, the lymphocytes abounded in the blood, probably because the resulting contraction of the splenic capsule forced many of these cells into the circulation. The blood drawn directly from the spleen was also rich in lymphocytes. It was also found that wherever the number of leucocytes was abnormally low, the blood-serum manifested a slight agglutinating action, but not a hemo- or a leucolytic action. It is probable that the leucopenia is not due to an unequal distribution of the white cells in the body or a leucotoxic action of the blood-serum, but to a peculiar condition of the leucopoietic organs, particularly the bone-marrow and the spleen. In many cases the former organ will show myeloid changes, yet it is not clear why this should be accompanied by leucopenia. That other factors enter into the problem of the causation of leucopenia is highly probable.

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SATURDAY, NOVEMBER 4, 1905.

THE VICIOUS INSANE AND THEIR TREATMENT.

FROM that memorable day on which Pinel struck the manacles from the wrists of the insane at the Bicêtre, the condition of this class of unfortunates has improved steadily.

The changes that have come about are subjects of congratulation to the medical profession; but they have come very slowly and there are still many evils, if not abuses, that are in much need of correction.

The unfettered hands made for increased liberty, it is true, but the value of the abolition of the chain was rendered nugatory by the locked and barred windows of the asylum. While in certain localities a progressive spirit was manifest, as in Belgium, the major portion of the insane population were shut up in their asylums.

The influence of the Gheel and other colonies brought into prominence the principle of the "open door," and it may now be claimed that the principle of non-restraint is the guiding one in our institutions at the present time.

However, the "open door" is open in a restricted sense only, for in the management of an asylum population, as classified in our present-day institutions, it has come about that in order to properly restrict a few intractable chronic cases, the liberties of the many comparatively

even and undisturbed patients must be somewhat curtailed. This works an injustice to many, which even the farcical "daily walk" does not in any sense mitigate.

The need for, and the effort to give a more enlightened and humane freedom to these patients, who in reality require no restraint whatever, has led many alienists to advocate special means of dealing with the vicious insane, those who from one motive or another are the mischief breeders in the asylum population, and many others.

A recent and powerful suggestion along these lines comes from Serieux in the *Revue de Psychiatrie et de Psychologie Expérimentale* for July, 1905. In his review of this general subject Serieux advocates the establishment, not only of hospitals for insane criminals, *i.e.*, those becoming insane while serving sentence, but special hospitals for the dangerous class of insane to which should be transferred all those who have committed dangerous acts while insane, including those already committed to other hospitals, the insane criminals whose sentences have expired, the morally insane, born criminal, degenerates with dangerous tendencies and, in general, vicious insane of all classes.

This suggestion falls into line with the general trend of modern hospital management, of which we have spoken, which seeks constantly to better classify the hospital population. The separation of the insane criminals, criminal insane, epileptic and tuberculous classes has already been pretty well effected in this country. The author's plans, however, would take us a step farther and segregate all of the insane of whatever class who are dangerous in their tendencies, recognizing that whether they have come under the operation of the criminal law or not is largely a matter of accident, and that their treatment and the methods to be used in their care and custody, to be rational, should depend solely upon their mental condition.

In New York State, with its numerous hospitals for the insane, such a classification as this could be very readily carried out. It would not even be necessary to create a new institution for this class of insane, but in providing for the annual increase of six to seven hundred patients that the State has to accommodate, the necessary construction could be added in connection with one of the already established State hospitals. Although the author says nothing about

the character of buildings which would have to be erected, it is fair to assume, from experience with this class of insane, that the buildings would have to be constructed more nearly to approximate the style of a prison than those for general purposes, as this class of lunatics would require, to an extent at least, the constant observation and discipline of prison life.

In the tremendous reaction which took place from the old systems of restraint in the care of the insane, the modern hospital has come forth free from bars and with open doors and, in many instances, ill provided to care for the class of patients under consideration. It is, as a consequence, not an uncommon thing to see a viciously inclined lunatic, because of his dangerous tendencies, absolutely destroy the morale of an entire ward, perhaps an entire service, and by the constant care and attention which he requires, detract from the attention and care which should be directed to other patients. Such cases as this are usually of a chronic nature, and little or nothing is to be hoped for in the way of treatment. They should, therefore, properly be removed from the midst of others who are quiet and harmless, and whose condition is such as to make the results of treatment hopeful. The principal problem connected with their cases is how best to protect the community from their ravages, and although their custody in a special institution may not possibly be quite as comfortable for them, still it would seem that the best interests of all concerned would demand some such handling of this class of lunatics. If this method of procedure were followed the spectacle of an escaped lunatic terrorizing a community and placing life and property in jeopardy, moreover, would be less frequent.

GOOD MEN GONE WRONG.

LET the shoemaker stick to his last is too ancient a saying to even need quotation marks, but old as it is no one can question either its wisdom or its truth, and nowhere, perhaps, can any deviation from its advice be more productive of serious and yet ludicrous results than in the field of medical practice.

For in these busy days of specialism it is only natural that the demand for journals devoted to special subjects should be met by their publication. As soon as a new cult, or section of a profession, becomes of interest to a sufficient number of people, a trade journal devoted to

that particular subject is established, and these increase and multiply on the general principle of the supply becoming equal to the demand. This is all as it should be. The publication is devoted to a special object; is read by people interested in that particular subject, and becomes an authority on it.

But having become established along these lines, it is a dangerous experiment to forsake them for strange gods and to go wandering into fields where their ignorance becomes painfully and humorously apparent. Thus, if a magazine had become known as an exponent of the ice trade in Maine, it would be apt to make some ridiculous errors if it started out to give advice to the sugar planters of Louisiana, while an educational journal that was supported and subscribed to by teachers and professors would hardly be considered an authority on the prize ring and general sporting intelligence.

A most striking example of this is to be found perhaps in the late issue of a journal that has become known far and near as being the court of appeal for the fair sex; an authority on her laces, her lingerie, her stocking supporters and everything that is hers. Added to this, it has a system of gathering its fair subscribers to its womanly bosom and, in a series of heart-to-heart talks, telling them in a negative way everything that they should not do. Now it has, it seems, taken a fresh departure and has added a department in which positive information as to what they should do, in a medical way, is dispensed in a most didactic manner.

For instance, they publish a letter from a fair correspondent, who writes that she has a "lady friend" who is so troubled with excessive perspiration that she becomes offensive and complains that "gentlemen" do not like to dance with her as she smells so "goaty." Now, who this "lady friend," that, like the battle, was smelt afar off, may be, we do not know, and, to tell the truth, are too polite to inquire. We were educated in our youth on the copy book heading that "horses sweat, men perspire, but that ladies glow," and we need no postgraduate course at the feet of even this terpsichorean Gamaliel. We are in doubt, however, as to what peculiar and pathognomonic odor can be ascribed to the goat. Musk has a distinctive and characteristic one, and the same may be said of the polecat, but we have always considered that of the goat to be of a composite nature

and to vary at different times and occasions; in fact, we remember an extremely strong and offensive simile that was used by a Western orator who declared that his political adversary was "as full of queer ideas as a goat was of strange smells." All this, however, is foreign to the argument, and smacks of the minstrel conundrum as to what smelt the most in an apothecary shop, which was promptly answered by "bones," who implicated the man behind the counter. But if the lady friend smelt goaty, it was perhaps superfluous to classify the odor.

Now, this journal is an authority on shirrings and ruchings. The good little dame in charge could tell at a glance if the corsage of opulent charms was in need of another "dart," and would be able to rectify the bad cut of the two-gored skirt that "hiked" in the front, but she is not a practising physician and it would be better for her to return the pins to her mouth and cling to her tape measure, than to trim her wings and fly to ills she knows not of.

Still another more glaring instance of the folly of departing from the beaten track is given by a well-known literary journal whose specialty is the providing of literary pabulum in a pre-digested form. In a recent issue it gravely and sedately publishes an editorial under the rather startling and surprising caption of "Can we breed a seedless man?" To this unique and rather misleading heading is appended a picture of Mr. Luther Burbank, with a note in small type explaining that he is the "wizard plant-breeder of America, who may yet add a seedless man to the list of his creations." The leader, after paying a deserved compliment for his success in stirpiculture to Mr. Burbank, plunges boldly and suddenly into the subject by asking "Why not eliminate some of the objectionable features from the human race in the same way?" If Burbank gives us a seedless apple, why may he not with equal success produce a seedless man; that is, one without a moral or physical fault? When this was suggested to Burbank he is reported to have answered, "that to do this very thing had been and still was the dream of his life."

Up to this point, as will be seen, there seemed little in the way of this proposed scheme, but now comes the first sign of doubt in the writer's mind of its immediate success, as he goes gravely on to ask "Is it possible to treat men like seedlings, to select the best and eliminate

the rest, as Burbank burns his piles of unsatisfactory plants?" Evidently he has his doubts, as he quotes from a leaderette in the *San Francisco Call*, which, as he says, "points out some of the difficulties in the way." These same "difficulties" make rather a long list, but the writer keeps his best wine to the last in a way that is reminiscent of the classical reasons for not ringing the bells, and then sums up as follows: "In all these differentiations of animals and plants the subject was entirely under the control of man. Whole generations of plants were pulled up and killed and thrown aside, and one was preserved. In perfecting neat cattle whole generations went to the butcher except a favored few that were saved for the transmission of the desired traits. Whole litters of puppies were sent to the mill pond, except one or two that promised results.

Verily the human race could not be subjected to a course of sprouts and trimming such as this, and we fear that our literary friend must be content with the seedless man as he now exists. A seedless man, that, unlike the poet, is made and not born.

PROFESSOR VON NOORDEN ON MEDICAL EDUCATION.

THE St. Louis Fair will ever remain a memorable event in the annals of education by reason of the wonderful aggregation of the world's leaders of thought at the Congress of Arts and Sciences. This event alone has been a strong uplifting force in raising educational ideals throughout the United States.

The field of medicine has shared in this stimulus, particularly through the comment and criticism, always kindly, uniformly just and warranted, of many of the visiting members of the profession. Never before within the space of twelve months have so many distinguished foreign physicians visited the medical centers of the United States as during the year past. From time to time we have commented on the published statements that many have given to their countrymen and it is with a sense of growing pride that, as medical men, we have seen that our medical ideals have been observed and our lagging practices kindly discussed.

Our latest visitor, who even now is within our walls, Professor von Noorden, of Frankfort-a-Main, has been interviewed by our daily press, and as his comments on things medical, though

drawn from a hasty glance at present conditions, contain truths which we recognize, we have thought to use them to re-echo the cry of our need for increased clinical facilities in our medical schools.

With many others who have come before he tells us and his confrères that the laboratory work and the teaching done in our medical schools is of the highest character. That it has deficiencies we are well aware, but it is pleasant to feel that an ideal, toward which the leaders in the profession have been striving, has been so nearly realized as to call forth praise from those who have been making at home a successful issue of similar aspirations. It gives us hope that the essential feature of a better medical education, the more intimate union of the hospital and the medical school, will come for all of our schools as the opportunity offers.

To review the economic phases of development of the medical schools in the different States of this country would take us far afield. Those who have watched their gradual evolution can understand that the conditions as found to-day are the inevitable results of the general social status of the new and rapidly developing republic. For ourselves, we congratulate those who have molded medical school development, that they have been able to accomplish so much—and so soon after the great historical crisis of the sixties.

No one can read of the struggles that most of our medical schools have passed through without feeling a throb of exultation that there have been so many medical men with faith in the future, and with courage to work during dark moments. That chapter in medical history has been written as yet in fragments only.

Dr. von Noorden pleads, as Dr. Osler has so often done, for the extension of bedside work as carried out in the foreign universities and in some of our own schools. We do not feel it to be a criticism of oversight or neglect, however, that it is not more universal. Our teaching systems and our hospital systems have evolved from different sources, along different lines, and it must take time either to combine them, or develop independent hospital schools.

It is said that we have too many small schools and universities, but this is an episode merely. Not many years ago all of the schools were small. We venture the prediction that the most rapid changes in the direction, now so much de-

sired, will come about in these selfsame small colleges, for the ununited units of school and hospital are not so unwieldy or the foundations so fixed as they are in our Eastern centers, though, now that the tide is turning, we find Harvard, Columbia, Pennsylvania, and Chicago, earnestly working for these desirable ends.

Dr. von Noorden promises a more extended consideration, and we shall welcome his suggestions, for, judged by his singularly valuable lectures, we feel that he will approach the subject with due consideration of the complex factors involved, and indicate to us some practical methods whereby the coalition of interests can be effectively brought about.

ECHOES AND NEWS.

NEW YORK.

The Harvey Society.—The third lecture of the Harvey Society course will be given by Prof. F. G. Novy, of the University of Michigan, at the New York Academy of Medicine, on Saturday, November 4, at 8.30 P.M. Subject "Trypanosomes."

New York Skin and Cancer Hospital.—The Governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a seventh series of clinical lectures on diseases of the skin in the Out-Patient Hall of the Hospital on Wednesday afternoons, commencing November 1, 1905, at 4.15 o'clock. The course will be free to the medical profession.

New Hospital Dedicated.—The Philanthropic Hospital of Williamsbridge, recently chartered by the State Board of Charities, was dedicated October 30, 1905, in the presence of a large gathering of the medical profession and others interested. The old Jerome Hall, at Briggs Avenue and Maple Street, was leased and remodeled, and it was this building that was dedicated. It is a frame structure, and has accommodations for twenty patients, with a house staff of six physicians and six nurses. Corporation Counsel Delany, Magistrate Wahle, Prof. Charles Howard Bangs, of the College of Physicians and Surgeons, of Boston, Dr. George B. McAuliffe, visiting surgeon to the hospital, and Samuel Wallach, Chairman of the Trustees, spoke. Hitherto it has been necessary to take accident patients four miles to Fordham Hospital. The trustees wish to make known their desire for an ambulance.

For New Consumptive Hospital.—At its regular meeting last week the Board of Estimate appropriated \$800,000 toward the construction of the tuberculosis hospital at Staten Island and bound itself to appropriate the balance of the \$2,000,000 needed to carry out the plans in detail. Charities Commissioner Tully explained the needs of the institution. He is building in it units, and it will be several years before all the appropriation can be used. Gen. Wingate of the Board of Education reported that it had been found impossible to get athletic fields for all the boroughs for \$300,000. He asked for \$200,000 more, and the board voted it. Borough President Ahearn asked if Manhattan was to have a field. Mr. Wingate said it would cost too much. Then Mr. Ahearn insisted

that his plan, advanced last week, that the recreation piers in Manhattan be covered and be made winter gymnasiums be acted on. The requisite appropriation was promised as soon as the budget is disposed of.

Dr. Brush in Mount Vernon.—Single handed and with only his record to stand on, Dr. Edward F. Brush, the present Republican Mayor of Mount Vernon, is making a whirlwind campaign for re-election on an independent ticket. Judging from the present sentiment, Dr. Brush bids fair to smash both the Republican and Democratic machines and make good his pledge to the people of Mount Vernon to stop ring rule. Without even the support of a newspaper he has succeeded in stirring up great independent sentiment, and Republicans and Democrats alike are offering to bet thousands of dollars that he will win. With quotations of "Bust the Machines and Stop the Newspaper Graft," "Loyalty to Mount Vernon," "Vote for Brush and Home, Sweet Home" and "Let Independence Be Our Boast," Dr. Brush's name is a household watchword in the poorest and the most select sections of Mount Vernon. Mayor Brush is planning a monster mass meeting for next week at the City Opera House. He held one meeting at that place and although the night was a stormy one the place was filled from pit to dome. It is likely that either Charles Hill Willson, a millionaire Republican manufacturer, or Dr. Archibald M. Campbell, one of Mount Vernon's leading physicians and president of the Mount Vernon Trust Company, will preside. Dr. Brush threatens to take the "lid" off on both the Republican and Democratic jobbery. The fight has narrowed down between Mr. Archer and Dr. Brush, with the Democratic candidate running third. The Republican organization is working hard to stem the Brush tide. It is said they will have \$30,000 for use on election day.

Journal of Biological Chemistry.—The first number of this new journal has just appeared, bearing the imprint of Drs. J. J. Abel, of Baltimore, and C. A. Herter, of New York, as co-editors. It is a very praiseworthy introduction to what we know will prove to be a highly useful journal. The opening paper is by J. J. Abel and R. de M. Taveau on the decomposition products of epinephrin hydrate. This product it may be remembered was first found by Abel and subsequently isolated by Takamine and made commercially useful, as adrenalin. The present study is highly technical and is not completed. Dr. Reid Hunt contributes a paper on the influence of thyroid feeding upon poisoning by acetonitrile, CH_3CN . This product is toxic by reason of the hydrocyanic acid contained, which is slowly given off in the body. Ehrlich has shown that the poisoning can be neutralized by various sulphur compounds, and Hunt's study suggests the possibility that the administration of thyroid so alters the metabolism that more sulphur is made available. P. A. Levene writes on the Cleavage Products of Proteoses, and E. R. Posner and W. J. Gies contribute a study on Protagon, with the object of determining whether it is a mechanical mixture or a definite chemical compound. They conclude that protagon is a mixture of substances and not a definite chemical compound. The characters of the constituents have not yet been determined. Certain Aspects of Experimental Diabetes is the title of a paper by Frank P. Underhill. He studies the actions of piperidin, nicotine, etc., when painted on the pancreas whereby hyperglycemia is constantly produced. The reasons deduced are

that the hyperglycemia is partly due to the general effect that these substances have in causing depression of the respiratory center with its attendant dyspnea. The dyspnea is always attended by glycosuria and hyperglycemia. Adrenal glycosuria cannot be explained in this manner. From a typographical and bookmaking point of view the journal is highly creditable.

New Otisville Sanitarium.—Sixty guests of Dr. Thomas Darlington, Health Commissioner of New York, visited last week the site on the Shawangunk range of hills in Orange county, which through the untiring effort of the Commissioner has been obtained for the establishment of a camp for consumptives, and where before two months elapse patients from this city will begin a hopeful fight for health and life. It has been only after unremitting efforts and almost insurmountable difficulties that Dr. Darlington succeeded in obtaining the site. Obstacles of all kinds have been in his path. Town after town refused to grant him permission, communities united against him, railroad companies opposed his plans, but inflexible determination finally triumphed and after the permission of the Board of Supervisors of the county had been granted he obtained the option on 1,200 acres of land in one of the most desirable places in the State. Of that tract of land 770 acres were deeded to the city some time ago, and the balance is to be bought in the near future. The party which visited the site was composed of members of the Board of Health's Advisory Committee, members of the National Society for the Study of Tuberculosis, members of the Society for the Study of the Condition of the Poor, several city officials and several newspaper men. A special train was provided and the party left the Twenty-third Street ferry of the Erie Railroad shortly after noon. After a fast run through a beautiful rolling country, Otisville, a few miles north of Middletown, N. Y., was reached at 2 P.M. Carriages conveyed the visitors to the summit of the hills on which the camp is to be situated, and which from an altitude of 1,400 feet will dominate two beautiful valleys, on the south side the one of Otisville, and on the north the one where the Neversink River runs. A more ideal spot for the purpose could hardly be found. The camp is to have a southeastern exposure. Summer quarters are to be erected on the summit of the hills and winter ones on the lower plateau, sheltered from the cold winds from the north and the west. The site is due west of Newburg. In a straight line it is twenty-eight miles from the Hudson, and by rail seventy-five miles from New York City. Springs of pure water are abundant, and the Neversink River runs near by. The property includes several farms. About twenty buildings are on it. "Now that we have found this site," said Dr. Darlington, "I am glad that we failed in other places, for we have obtained a better one in the end. Not only is this an ideal site, but I am convinced that in buying this land the city will get full value for its money. Although some of the farmers objected to our coming here and held their price high, we have succeeded in buying at usual prices. We began negotiations in the month of May, and the Board of Supervisors gave its consent comparatively easily. We have now bought about 700 acres, and expect to buy more as we go along. A special appropriation of \$250,000 was made by the city in June for the camp, and of that sum \$96,000 has been allowed for the purchase of the site. The land on which we have an option will cost ultimately about

\$80,000, but I want all the land I can get. It will not all be a dead expense, as we expect to obtain returns from the cultivation of the land. Although the institution will be purely charitable, our patients will be expected to help in the working of the different farms." Dr. Hermann M. Biggs, General Medical Officer of the Board of Health, explained to the visitors some of the plans for the camp to which, with Dr. Darlington, he has given much time and thought. "This will not be like an ordinary sanatorium," he said, "as our patients are expected to wait on themselves as much as they can. From the beginning there is going to be a distinct understanding that those patients who are able to work, must do so or get out. The physicians in attendance will distribute the work according to the condition of the different individuals. Although in some cases exercise of any kind may harm a patient, in others, and especially in that of men who have been used to work, a little work is distinctly beneficial. Besides, only early or incipient cases will be taken here. Our patients will be taught a trade if they desire to learn one. There will be a schoolhouse for children, we shall endeavor to make the camp as self-supporting as possible. The land offers splendid opportunities for dairy production. We shall need enormous quantities of milk and eggs. We hope to get all this milk from our own place and have enough surplus to send to the hospitals in New York. It would be then a saving both ways as it would cost us about three cents a quart to produce milk here while now we have to pay six cents for certified milk in New York. Everything is going to be on the most economical scale possible. Food is to be of the best and nothing is to be neglected that will contribute to the improvement of the patients, but there will be no money spent on magnificent buildings and marble palaces. We shall build frame shacks. Each is to accommodate from ten to fifteen patients, we shall not take pay patients, but men and women will be used as employees. The first ones to come here probably will be selected from those that are being treated at the dispensary in New York, where we have almost 5,000 cases under our care and attend about seventy every day. We shall probably be able to accommodate 500 persons, but not many more for some time, I think. If the patients who come here do not improve after a certain length of time they will be sent back to the city or to some other place. The period of trial will be of about seven or eight months. We aim especially to help the small wage-earners, who can come here for a few months, learn how to take care of themselves, regain their health and then go back to the city." Dr. Abraham Jacobi made an examination of the water and said that he was very glad to find it pure and entirely satisfactory. He said that it came through an under stratum of granite and a soil in which there was no lime, and that it could not be polluted, springing as it did at such altitude. The party returned to New York on the special train, reaching here at 7 o'clock. Among the guests were Thomas McAvoy, Deputy Commissioner of Police; Dr. A. H. Doty, Port Physician; Dr. Francis Quinlan, Dr. Abraham Jacobi, Dr. George F. Shrady, Dr. William R. Townsend, Dr. A. Blauvelt, Dr. Paul Kennedy, secretary of the Committee for the Prevention of Tuberculosis; George Cooke, Samuel Parsons, Superintendent of Parks; William E. Studdiford, Livingston Farrand, William S. Gardner, William S. Cherry, Charles F. Roberts, C. Johnstone Impera-

tori, C. T. Graham Rogers, W. K. Simpson, H. Du Bois Goetchius, John B. Manning, Joseph H. Raymond, De Witt J. Seligman, James A. Uttler, Arthur J. Weil, E. J. Richardson, Charles S. Benedict, Henry F. Koesler, L. Emmett Holt, Walter F. Chappell, Hermann M. Biggs, Joseph D. Bryant and S. A. Knopf.

PHILADELPHIA.

Recital for Hospital.—On November 21, a musical recital will be given at the Hotel Walton, the proceeds of which will go to the Oncological Hospital.

Filtered Water for West Philadelphia.—In order to supply all the people of West Philadelphia with filtered water, Director Acker has advertised for ten additional boilers to be placed in the Belmont Pumping Station. The Director expects that the additional boilers will be in working order by the first of the year.

Medical Club Gives Reception.—Professor Carl von Noorden, of Frankfort-a-M., Germany, who is now visiting this country, was given a reception by the Medical Club at the Hotel Walton. Dr. Howland G. Curtin, president of the Club, after giving a brief address introduced Dr. von Noorden, who made a short address, which was followed by a talk from Dr. Edward Brooks, Superintendent of the Public Schools. After these brief addresses the reception was formal; refreshments were served. Dr. von Noorden will attend several clinics and will visit the various hospitals in the city.

Towns Seek Aid to Combat Typhoid Fever.—Recently Dr. Dixon, Commissioner of Health, received a communication from the Board of Health at Berwick and Nescopeck asking his assistance in stamping out the epidemic of enteric fever which prevails at those places. Dr. Fred C. Johnson, chief medical officer of the department, was sent to Berwick at once, where he met F. Herbert Snow, chief of the Sanitary Engineer Bureau of the department, and Dr. George H. Fox of Hummelstown. These officers through Dr. Dixon's orders will cooperate with the local boards in suppressing the disease. Since both of these towns are below Nanticoke, where the disease has been epidemic, it is believed that owing to carelessness, waste matter has escaped from Nanticoke, which gave rise to the infection farther down the river.

Meeting of the Philadelphia Neurological Society.—The regular meeting of this Society was held October 24, 1905. The scientific program was opened by Dr. J. W. McConnell, who exhibited a patient with "Atrophy of the Lower Limb Following Specific Urethritis." Dr. W. W. McClure and Dr. T. H. Weisenberg showed a patient suffering with "Progressive Facial Hemiatrophy." Dr. Alfred Gordon presented a case of "Double Ego" and read a paper on the subject. Dr. Charles K. Mills spoke of "Cruel Monoplegia, with comments on 'Progressive Ascending Hemiplegia,' probably due to Degeneration of the Pyramidal Tract." Dr. G. A. Moleen, of Denver, Col., and Dr. William G. Spiller reported a case of "Chronic Anterior Poliomyelitis" in an adult, with Necropsy. Dr. William Pickett made some remarks on "Testing the Iris Reaction to Light."

Meeting of the Philadelphia County Medical Society.—The regular meeting of this Society was held October 25, 1905. The scientific program was opened by Dr. John H. Gibbons, who read a paper on "The Operative Treatment of Fractures of the Patella";

he exhibited cases. Dr. Herman B. Allyn read a paper on "Two Cases of Severe General Infection of Obscure Origin." Dr. W. Wayne Babcock spoke of "A New Method of Surgical Anesthesia." In the course of one month thirty-two operations have been performed by the use of the "Scopolamine-Morphine" anesthesia at the Samaritan Hospital. Of the thirty-two, three were absolutely quiet under the operation; the remainder showed either slight or pronounced muscular twitching. Dr. Alfred C. Wood's paper was entitled "Notes on General Anesthesia with Special Reference to Scopolamine-Morphine Anesthesia." These papers were discussed by Dr. W. L. Rodman and by Dr. H. C. Wood, Jr.

Milk Accused of Infecting Pharmacy Students with Enteric Fever.—A rather curious coincidence occurred recently when typhoid fever broke out in the dormitory of the Philadelphia College of Pharmacy. The first student attacked came from Nanticoke, a town near Wilkesbarre; where enteric fever has been epidemic and from which he might have brought infection, but since other students soon developed the disease also, that idea was abandoned. Not long after the second case developed four others made their appearance. The Board of Governors of the College then sought to determine the source of the infection. The Bureau of Health was notified and a search was begun, but nothing could be found that might account for the production of the malady. The milk supply was then examined, but up until the present time no bacteria have been found that might be responsible for the disease. The source of the milk supply was changed. There seems to be some doubt at the Pennsylvania Hospital, where three of the case were taken, as to whether or not the disease is typhoid fever.

Meeting of the Philadelphia Pathological Society.—This Society held its regular meeting October 26, 1905. The newly elected president, Dr. W. M. L. Coplin, was in the chair. The scientific program was opened by Dr. Samuel Leopold, who reported "A Case of Coccyeal Teratoma." The case was discussed by Dr. A. P. Francine, Dr. David Riesmann, Dr. Allen J. Smith and Dr. W. M. L. Coplin. Dr. C. Y. White spoke on "Pathogenic Molds (Aspergillosis)." Dr. McFarland presented three cultures of pathogenic molds recently brought from India. Dr. Howard Fussell read a paper on "Large Cystic Left Kidney and Five Calculi in the Opposite Organ." He showed the specimens. Dr. A. O. J. Kelly read a paper on "The Nature and the Lesions of Cirrhosis of the Liver, with Special Reference to the Regeneration and the Rearrangement of the Liver Parenchyma." He exhibited two gross specimens, one showing the hypertrophic and the other the atrophic form; both organs were larger than a normal liver. The paper was discussed by Dr. Steele, Dr. Riesmann and Dr. Coplin. The next paper was read by Dr. Randle C. Rosenberger on "The Spirochæta Found in Syphilis: A Study of Thirty Cases." This paper was discussed by Dr. J. J. Kinyoun, Dr. McFarland, Dr. Allen J. Smith and Dr. Coplin. Dr. Allen J. Smith exhibited a specimen showing a tubal pregnancy. Dr. C. Y. White presented a specimen showing melanotic sarcoma of a horse's tail, of the penis and of the iliac vein. Dr. John Funke exhibited a heart showing a pulmonary valve made up of two leaflets.

Hospital Reports.—The seventh annual report of the Free Hospital for Poor Consumptives shows that the total number of patients admitted between

March 1, 1904, and February 28, 1905, was less than the total number of cases admitted the preceding year. During the time named 408 patients were admitted. Since the number of cases admitted was less and the expenses for the year ending at the time named was more, the cost per patient was decidedly increased. The total amount expended for the maintenance of the patients at the White Haven Sanatorium was \$30,500.08; the Philadelphia executive office expenses amounted to \$4,366.93. The total expenditure was \$113,960.00. This included the building of a power house capable of supplying light for 300 patients. The total receipts were \$117,386.69. During the coming year an attempt will be made to increase the capacity of the hospital so that 300 patients can be accommodated, instead of 120. It is the intention of the authorities to establish a chicken farm which will not only be a source of revenue but will also give employment to many of the inmates. According to the Director's report, the Department of Public Health and Charities will need \$650,496 for maintenance during the coming year. That sum will be \$287 less than the amount appropriated the last year. For executive expenses the Director asks \$80,140, of which sum \$24,300 is needed for salaries, \$2,000 for the city's contribution to the Pennsylvania Training School at Elwyn, \$20,000 to pay expenses of paupers' children in various homes, and \$1,000 for a temporary home for homeless adults. The Health Bureau asks \$285,200 for maintenance during the coming year. This amount is \$5,000 less than the appropriation of last year. The maintenance of the Philadelphia Hospital amounts to \$285,156; of the sum \$125,000 is used to pay salaries, \$50,000 for repairs, \$21,000 for marketing, \$15,000 for drugs and \$7,500 for surgical instruments and hospital supplies. During the year just ended an operating room and sterilizing room have been constructed and equipped.

CHICAGO.

Appointment of Dr. Farrell.—Dr. P. J. H. Farrell has been appointed Surgeon-General of the Army of the Philippines.

Ravenswood Hospital Incorporated.—A hospital by this name has been incorporated with a capital stock of \$50,000, for the purpose of maintaining a hospital and training school for nurses. The incorporators are Drs. Ernest A. Fetherston, Geo. W. Green and Geo. N. Bussey.

Favor Garbage Reduction.—Plans for disposing of the city's garbage were recently discussed by Commissioner Patterson, Richard Fox, Superintendent of Street Cleaning, and Aldermen Bennett and Raymer, of the Council Finance Committee. The two former have been investigating garbage plants in Eastern cities. Mr. Patterson returned to the city a firm believer that the process of garbage reduction is the best. Several bids have already been made for garbage reduction. Aldermen Bennett and Raymer are in favor of the contract plan as against the operation of a city plant. The matter will be taken up at a future meeting, and disposed of.

New Hospital Car Exhibited.—A new Southern Pacific Hospital car, which can easily be transformed into a parlor coach, was on exhibition recently at the La Salle Street Station in this city. When not in use as a hospital car all of the berths and beds and the operating table are lowered beneath the floors, where they are stored. The floor sections of the berth space come up and form the head and foot-boards for the

berths. The sections can be made up in single or double berths, and in place of the ordinary arrangement brass bedsteads may be substituted. Both lower and upper berths are provided with steel springs and the best mattresses. There is ample ventilation for both upper and lower berths, and either bed can be raised or lowered to any height desired. When the beds are in use the chairs and baggage are stored in the spaces beneath them. In sanitation the car is a distinct advance over the old style.

Infectious and Contagious Diseases.—Chief Medical Inspector Dr. Herman Spalding delivered by invitation a timely address on this subject on October 19 before a local medical society. Concerning pneumonia, which is again disputing with consumption for the captaincy of the men of death, Dr. Spalding cited statistics of the U. S. Census Bureau, and of the Chicago Registrar's Office, showing that one-tenth of all deaths in the United States is chargeable to pneumonia, and that in Chicago, from 1900 to 1905, more than one-eighth of all the victims of disease died from its effects, the death rate being greater by one-third than from consumption, and 85 per cent. more than that from all other acute contagious and infectious diseases combined, including diphtheria, measles, smallpox, typhoid fever, whooping-cough, influenza and scarlet fever. In Chicago during the five years there were 8,353 deaths from these diseases, compared with 15,327 from pneumonia.

Chicago Sewers a Menace to Public Health.—In the Bulletin of the Department of Health for May 13, 1905, it was stated that "the present condition of the city's sewers is an increasing menace to the public health of the city." Mr. Perry L. Hedrick, chief sanitary inspector, states that the conditions of sewage-flooded basements or of sewage-soaked soils beneath buildings are entirely too frequent to permit of the use of the sewers as ordinarily laid within buildings. Either the pipe must be placed in such a manner as to render it safe, in so far as the present prescribed water pressure test can be made to determine this, or a remedy must be sought in the use of extra heavy cast-iron pipes for house drains. The importance of a test upon house drains in Chicago cannot be overestimated. That this test should be sufficient to insure the employment of a high order of skill and the use of first-class material is absolutely necessary for health in the home. Insufficient size of many Chicago public sewers causes frequent flooding and back pressure in the house drains, which is virtually a water pressure test under varying heads of pressure, which produces fractures, discovers defects and develops leaks in the tile pipes, resulting in the presence of standing sewage in basements, cellars and surrounding soils. The gases arising from the leaks and breaks in drains have a positive effect upon all classes of persons breathing them by lowering vital resistance and thus increasing the susceptibility to disease. Sewer gas and soil air probably aggravate all diseases.

Chicago Physicians to Erect a Medical Building.—At a meeting of the Physicians' Club, held October 23, the subject for discussion was "The Establishment of a Permanent Medical Home and Library for the Physicians of Chicago and Cook County." Dr. Charles L. Dana, of New York, addressed the Club on the history of the organization of the New York Academy of Medicine, and offered suggestions concerning the establishment of a similar organization in Chicago. Dr. Nicholas Senn addressed the Club on the establishment and maintenance of a medical library in such a club, after which a general discussion followed. It is the purpose

to make the building self-supporting from the rents received for private offices of physicians and surgeons, and at the same time to supply a place for the extensive and valuable library of the Chicago Medical Society, lecture and meeting rooms, club features, and rooms fitted up to take care of emergency cases and minor surgical work. A committee of the Chicago Medical Society now has the work in hand. Members of all organizations made up entirely of physicians and surgeons have given the project their hearty approval, and promise the funds to carry it out. Dr. Nicholas Senn offered to be one of twenty to subscribe \$5,000 each for the project. Dr. Daniel R. Brower proposed that the number be increased to one hundred, supplying at once the means for beginning work. E. S. Andrews, representing the Trustees of the John Crerar Library, it is said, offered to take care of the medical library in the new structure that will be erected on the lake front, and also to supply meeting rooms for the medical organizations. The proposition was accepted by the Physicians' Club.

GENERAL.

Plague in Siberia.—Bubonic plague has again appeared on the line of the Trans-Siberian railroad, which from now on will be crowded with returning troops.

Appointment of Professor Johnston.—Dr. George Ben Johnston, of the Medical College of Virginia, has been elected professor of surgery at the University of Virginia to succeed Dr. A. H. Buckmaster, resigned.

Agnes Memorial Sanatorium.—Resignations.—Not approving of the present policy of the institution, the entire Medical Board, consisting of Drs. Arnold Stedman, W. H. Bergtold, Carroll E. Edson, J. A. Wilder and L. B. Lockard, has resigned from the Agnes Memorial (Phipps) Sanatorium, Denver, Col.

Appendicitis in Alaska.—Dr. A'Darcy Chace sends a note of the following case of recurrent appendicitis occurring in Nome. A. L., aged thirty-one years, operated on September 12 last, after having had three mild and one rather severe attack. The appendix was bound down in a mass of adhesions and was liberated after some trouble. Upon section after the operation we found in the appendix a small concretion from one side of which projected a short, stiff, black hair. Patient made prompt recovery.

Winding Up of Fever Regime.—The Marine Hospital authorities have just announced that no further yellow fever patients would be received in the emergency hospital. The services of eleven assistant surgeons, recruited from New Orleans physicians, were dispensed with. The rush of New Orleans people to their homes continues, partly induced by the fact that danger from fever is regarded as over and partly by the coming visit of President Roosevelt. Country towns which are lifting the quarantines are crowded with mechanics, laborers, and others interested in the sugar industry.

Japan's Medicine in the Navy.—Surgeon General S. Suzuki, of the Royal Navy of Japan, on the staff of Admiral Togo, on board the flagship Makasa, in the battle of the Sea of Japan, while visiting Cambridge recently, at the request of President Eliot, gave an address to the students of the Harvard Medical School and to as many of the profession as could attend. He described in detail the conditions for doing emergency surgery on board ship, and the disadvantages under which they had to labor. He told what sort of wounds were received and how they were dressed and in general as regards the medical department on board a Japanese warship. He spoke most interestingly and

his remarks were very enthusiastically received. He was introduced by Dr. John C. Warren.

State of New Jersey Board of Medical Examiners.

—At a conference held between the Board of Regents of New York and the State Board of Medical Examiners of New Jersey, at Trenton, N. J., October 16, last, it was decided to indorse each other's examined licentiates without further examination, beginning January 1, 1906. The medical license of New Jersey is indorsed, at this time, in lieu of further examination, by Maine, Vermont, Delaware, Virginia, South Carolina, Texas, Ohio, Illinois, Michigan, Minnesota, Wisconsin, Kansas and Colorado. New Jersey will indorse the medical license issued by any State, after examination, whose educational, examining and licensing requirements are substantially equal to, or higher than, those of New Jersey, irrespective of reciprocity, provided the applicant complies with the conditions of indorsement. The Standard of Requirements of New Jersey consists of a high school diploma issued after four years of study, and a medical diploma issued after four courses of lectures of at least seven months each, in four different calendar years, in a medical college of approved standing.

Traces Typhoid to Fruit Venders.—At the quarterly meeting of the Massachusetts Association of Boards of Health at the Hotel Brunswick last week the principal address was by Dr. George B. Magrath, acting secretary of the State Board of Health, who said that the recent outbreak of typhoid fever in Springfield, which he had investigated, was due, in his opinion, not to the water supply or the distribution of milk, but to the venders of bread, fruit and vegetables. Dr. H. C. Emerson, of Springfield, thought the epidemic was caused by the water. Professor Sedgwick, of Technology, agreed with Dr. Emerson, but considered Dr. Magrath's deductions were very good. Dr. Langdon Frothingham, of the Harvard Medical School, in a paper on "Rabies," referring to dogs, said: "There is no other animal with so many objectionable habits that is allowed such unbridled liberty." The other speaker was Mrs. Ellen H. Richards, an instructor in sanitary chemistry at the Massachusetts Institute of Technology, who read a report on the recent meeting of the American Public Health Association. Dr. Henry P. Walcott, president of the association, presided over the meeting.

The Pathology of Clothes.—A witty writer has contributed to *St. George's Hospital Gazette* a prospectus of a proposed work on the pathology and treatment of diseases and accidents of the toilet. The prospectus is fortified by alleged extracts from the forthcoming volume. Among the lesions described are "perforating ulcer of the sock," "false passages of the vest," "hairy mole of the shirt-cuff," "idiopathic atrophy of the pajamas," "sloughing of the posterior foramen of the collar-band," and "prolapsed trousers," while a further chapter is said to be devoted to affections peculiar to evening dress, such as "Adison's disease of the shirt-front," "madura pump," and "inoperable volvulus of the neck-tie." The causation of false passage of the vest is described thus: "The head, being hurriedly thrust into the garment, lacerates the fabric, and emerges through the posterior wall of the axilla instead of through the cervical canal." "The best treatment is prolonged rest in bed." With regard to perforating ulcer of the sock, "treatment by simple suture or the purse-string ligature is not to be recommended. Each perforation must be carefully grafted by an expert."

The Boston Medical Library.—This Society is to give a series of lectures during the winter, as follows: October 28.—The Committee on Tuberculosis will make a report on progress through Dr. Henry Jackson. "The Treatment of Surgical Tuberculosis in Children," by Dr. E. H. Bradford; "The Duty of the City Toward Tuberculosis," by Prof. W. T. Councilman; "The Home Sanatorium Treatment of Tuberculosis," by Dr. Joseph H. Pratt. December 6—Surgical Meeting, subject announced later. December 20—"The Milk Supply of Large Cities." The program for this meeting has been arranged by Dr. Charles Harrington, chairman of Massachusetts State Board of Health, who has invited speakers from other cities. January 3—"Recent Advances in Physiology Bearing on Clinical Medicine," by Prof. W. T. Porter, Prof. Walter B. Cannon and Prof. Howell, of Johns Hopkins. January 24—"Surgery of the Peripheral Nerves," by Dr. John B. Murphy, of Chicago. February 14—"The Military Hygiene of the Japanese Army," by Capt. Charles Lynch, U. S. A. February 28—"Secret Nostrums," by Dr. Frank Billings, of Chicago. March 14—Surgical Meeting, subject to be selected by Dr. Joseph Blake, of New York. March 28—"The Treatment of Heart Disease": (a) "The Use of Depletion," by Dr. F. C. Shattuck; (b) "The Use and Abuse of Digitalis," by Dr. Franz Pfaff; (c) "Pneumatic Differentiations," by Dr. C. E. Quimby, of New York; (d) "The Nauheim Treatment," by Dr. F. B. Kinnicut, of New York. April 11—"Pyloroplasty and Gastro-enterostomy," by Dr. J. N. T. Finney, of Baltimore. April 28—Paper by Dr. G. G. Fernald, Waverly, of the Massachusetts School for Feeble-Minded.

The Stated Meeting of the Suffolk District Medical Society was held at the Medical Library October 28, 1905.

—Dr. Abner Post, President of the Society, presided. Dr. Henry Jackson gave the report of the Committee on Tuberculosis and described in detail the results of the crusade against this disease during recent years in Boston. The report consisted of first, a description of the work and the agencies employed; second, a study of existing conditions here and in other places, and the distribution of the disease and the efforts at its prevention. There is only one disease with a greater mortality, *i. e.*, pneumonia. Boston holds the third highest death rate from consumption of any city in this country. There are at least 3,000 cases here, 1,400 being reported during the past year and 361 deaths from the disease without previous report. He spoke of the great lack of any provision for advanced cases. He described the powers of the Board of Health and what it actually does, mentioning the efforts against spitting; he recommended a more thorough medical inspection of schools. Next he spoke of the hospital provision for consumption. Not one of the four largest general hospitals will receive a case of phthisis in its wards. There remains a few small institutions such as Long Island Hospital, the Samaritan Hospital, the Channing Home, the Cullis Home, Free Home for Consumptives and others. He then described the work of the Society for the Relief and Control of Tuberculosis, the Parker Hill Day Sanatorium, the Emmanuel Church Tuberculosis Class and other private and voluntary labors. Last he recommended the more careful reporting of tuberculous cases, agitation by the profession for a large municipal hospital for consumptives, the isolation of cases, prohibiting of spitting and a more early diagnosis.

Dr. E. H. Bradford spoke on the treatment of surgical tuberculosis at Wellesley. There is too little atten-

tion paid to tuberculosis in children, especially as Pott's disease and hip disease are such frequent conditions. The Society for the Relief and Control of Tuberculosis makes no mention of this. The Samaritan Hospital in Boston was the first institution of its kind in the United States to attempt to treat tuberculosis in children. He described the gradual growth of the home at Wellesley, giving lantern slides showing the buildings, wards and management of cases. Since Dr. Bradford has been connected with this institution over 8,000 cases have been treated with a surprisingly large percentage of cures. He showed pictures of children sleeping out of doors in zero weather, and tables showing the remarkable gains in hemoglobin and weight.

Dr. W. T. Councilman spoke on the duty of the city toward tuberculosis. He emphasized the fact that tuberculosis or healed tuberculosis was found in 80 per cent. of all autopsies, and that, seeing how many people must have this disease and not know it, and that all these people must be sources of infection to others, it was remarkable that the disease could be controlled at all. Tubercle bacilli in the open air do not live long, however, and the dust of the streets as well as milk must be a very minor source of infection. He spoke of the duties of the Board of Health along lines of education, isolation and the building of a hospital on Long Island in Boston Harbor.

Dr. J. H. Pratt read a most interesting paper on the home sanatorium treatment of tuberculosis. He spoke of the formation of this class, along the lines of Dr. Minor, of Asheville, and the work done by himself and Dr. John B. Hawes in regulating to the minutest detail the lives of poor consumptives, unable to pay even the \$4 a week required for Rutland, and gave the results. There were at present 9 members, one a case of pyopneumothorax, had neither gained nor lost weight; among the others the lowest gain was 8 pounds, two were 18 pounds, one 23 pounds and one 29¾ pounds since the middle of last July. He showed pictures of the patients living on the roofs of their tenements in tents in the heart of the city and contrasting views of the rooms from which they had been removed.

Dr. Townsend gave a report of the work done by the Parker Hill Day Sanatorium.

Dr. E. A. Otis showed some charts on the condition of the city as regards tuberculosis ten years ago and now.

Dr. C. J. Blake read a short memorial to the memory of Dr. Chadwick, recently deceased.

Dr. von Noorden Finds America Progressive.—

Prof. Carl von Noorden, physician in chief to the City Hospital at Frankfort-a.-M., and the most noted authority on disorder of metabolism, returned to New York early this week after a two weeks' tour of the leading medical centers of the country. Before leaving New York on his trip, on which he was accompanied by Mrs. von Noorden, Dr. von Noorden had delivered six lectures on diabetes, its pathological chemistry and treatment, as a part of the course known as the Herter Lectures at Bellevue Hospital Medical College, already reported in the MEDICAL NEWS. Dr. von Noorden gave his impressions of the United States, its people, and its institutions to a newspaper correspondent as follows: "Of course," he said, "my chief interest naturally centers in matters relating to my own profession and the members of it I have met here, many of whom I had already known during their summer visits to the hospital at Frankfort. On my trip I examined the hospitals and colleges in Chicago, Washington, Baltimore and Philadelphia, delivered lectures in them, and assisted

at clinics. I met with the warmest welcome everywhere, and both Mrs. von Noorden and myself are extremely grateful. But after all I must confess the greatness of the country impressed me more than I could ever have imagined it would. I found everything on a scale much grander than I had anticipated. I am so delighted to see the progress and the intense desire for progress on every hand. This intensity seems to be incorporated in every one here; not only have I observed it in the members of my own profession, but in all others. It has impressed me very much indeed. After lecturing before the Harvey Society on October 14, we went to Niagara and spent a day there. The grandeur of the spectacle amazed me, as it does every visitor. Then we went to Chicago, where I was very cordially received by the medical men. Both the Chicago Medical Association and the German Medical Society gave receptions for me. I delivered two lectures there, one on gout and the other on Bright's disease. I was sorry not to have seen more of Chicago, but my program was already too big for the limited time at my disposal. I visited the great Armour plant, and was especially interested in the chemical preparations. I mean the dietetic food preparations, which, in my opinion, are excellent. We visited Pittsburg next, and I spent two days with friends, taking a rest, which I assure you was much needed after four days in Chicago. Then we went to Washington, which I fully believe to be one of the most wonderful new cities of the world. Physicians from cities in Virginia and Baltimore visited me there. I was sorry I couldn't see more of the National Capital, but a Johns Hopkins man dragged me off to Baltimore to see the medical colleges. I do not regret it. I got a full impression of the excellent scientific work that is being done there. I observed the same thing in Philadelphia. Medical education is progressing here in an extremely rapid way. The combination of theoretical education, demonstrations and the practical work that makes up the medical student's course during the first two or three years, is admirable. It is much more extensive than we can give our young men in Europe. It augurs well for the future. I met with the same kind reception in Philadelphia and elsewhere. There was almost too much in the line of receptions and banquets; they nearly killed me. I visited the truly wonderful medical laboratory of the University of Pennsylvania. I never saw such an institution with such magnificent teaching facilities. The arrangements there indicate great progress; the methods are excellent. I assisted at some clinics and delivered some lectures, and then last week we came here. Naturally, when I compare these institutions with ours in Germany, I find some things to criticize. I have received the general impression that the theoretical education here is excellent, but the research work in the clinics and the bedside teaching is hampered. This is not the fault of the physicians, but because of the construction of the hospitals. It is difficult to combine hospital and laboratory work so that the one properly influences the other. Improvements are beginning, however, and new and great means of overcoming these difficulties can be brought into play. I have now been physician in chief to the City Hospital at Frankfort-a.-M. for more than eleven years. Postgraduate teaching only is given there. I have combined the laboratory and hospital work in a special manner, which I think greatly modifies the conditions I have spoken of as existing in Amer-

ican institutions. I have devoted years to the solution of the problem. I have a private clinic there, and every summer many Americans, both members of my profession and patients, visit the hospital. I believe that there are too many small colleges and universities in this country. I think if they were combined into a few, better and more concentrated work could be done. The visiting physicians to the hospitals are changed too often. It is bad for progress and research work. The hospitals themselves are new and excellent. I intend later, however, to write more fully my impressions in some medical journal. I shall remain here twelve days to rest and see New York, for I haven't had a chance to see your city yet. We will sail on November 7 on the Kaiser Wilhelm der Grosse."

OBITUARY.

DR. WILLIAM TITUS died last week of apoplexy in Newark, N. J. Dr. Titus was born in Hackettstown, N. J., sixty years ago, and received early training in Pennington Seminary. He was graduated from Jefferson Medical College in Philadelphia, and at the age of twenty-five went to Newark. He twice served the city as health officer, was for a time a United States examining surgeon, and for twenty-five years was a surgeon for the Lackawanna Railroad.

SPECIAL ARTICLE.

THE HERTER LECTURES ON DIABETES.^{1,2}

BY PROF. CARL VON NOORDEN.

PHYSICIAN-IN-CHIEF TO THE CITY HOSPITAL, FRANKFORT-A.-MAIN, GERMANY.

(Continued from Page 856.)

FIFTH LECTURE—OCTOBER 13, 1905.

The greater the intensity of the diabetic disturbance, the more of the carbohydrate flows away. The patient suffers from insufficient nourishment: he gets thin. Theoretically, one may put an end to this and replace the loss of carbohydrate by adding more proteid and fat to the diet. As a matter of fact we strive to follow this course. But it is hard for people to consume a sufficient quantity of fat. Abundance of the latter produces a gastro-intestinal catarrh, and the more intense the diabetic process, the more apt is this to occur. The patient gets weaker and weaker, and it is to these digestive disturbances, due to the large amount of fat, that the patient owes this condition, in many cases, more than to the original disease. In some cases there is an abnormal amount of purin excreted, although the nitrogenous balance is maintained. This indicates a progressive atrophy of the nuclein substance of the cells, possibly due to some toxic influence. The dangers of acidosis only apply to the severer cases of diabetes, and it is probable that it is the quality rather than the quantity of acid bodies that is decisive in this direction. The diabetic has a diminished resistance to acute infectious invasions, particularly to the streptococcus, staphylococcus, pneumococcus, and the bacillus of influenza, and when attacked by one of these he is pulled down by it more than the normal individual; recovery and convalescence are delayed. The acute secondary complication is followed by an increased glycosuria, and cases of slight diabetes are transformed into severe ones. One often notes the onset of early senility in diabetics:

there occur atrophy of the skin, loss of teeth, nervous manifestations, optic neuritis, neuralgia, etc. Injuries are more subject to septic infection, and healing is more difficult; the edges of the wound have a tendency to necrosis. The skin is one of the most sensitive parts in diabetes; it is subject to eczema, furuncles, carbuncles. Among chronic diseases, pulmonary tuberculosis is not so common a complication as at one time thought; when once combined with diabetes, it alters the prognosis, both in slight and severe cases. All the chronic degenerative processes are commonly seen in diabetics. Of these the principal one are diseases of the arteries. The arteriosclerotic process affects only the vessels of the lower extremity, like that form occurring in old age. In no other diseases is this localization of the disease of the arteries to the vessels of the lower extremities seen. As a consequence of the arteritis the patient is exceedingly liable to gangrene. What is the etiology of all these degenerations, Do they result from the hyperglycemia, or are they to be attributed to a toxine? It is a daily experience that ridding the patient of hyperglycemia or its associated glycosuria, or diminishing these, improves the symptoms of arteriosclerosis. Thus gangrene, neuritis, disturbances of vision and looseness of teeth get better; an increasing dimness of the crystalline lens may get better. It is rash to conclude that it is the sugar itself that is the cause of the degeneration. In overcoming the glycosuria we neutralize other toxic substances that are associated with it. If the early stages of diabetes are energetically treated, it is possible to ward off the serious later stages of the disease.

Treatment of Diabetes.—Years ago the only treatment of diabetes was symptomatic. To-day the dietetic treatment is the best. As regards prophylaxis, it is unfortunate that the large majority of the cases are well advanced before we are asked to treat them. But in special cases one may exercise an efficient prophylaxis. Thus, when several cases occur in the same family, one should be on guard against additional cases. Transitory glycosuria should be neither slighted nor neglected. It is a warning signal. The physician should make frequent examination of the urine, and the carbohydrates in the diet should be reduced to a minimum. This precaution is based on abundant experience. Plenty of carbohydrates reduces the toleration capacity of the patient. There is no true etiological treatment, for the true etiology is not known. There is no such disease as a neurogenous diabetes, but there is a neurogenous glycosuria which is transitory and plays a large part in the production of true diabetes. In many diabetics nervous influences lead to an increase of the diabetes. In severe cases the nervous influences are obscured, but in the mild cases the connection between the nervous system and the diabetes is clear. Mental excitement may cause the appearance of glycosuria in a diabetic, who, under an appropriate diet, is entirely free from it. This occurs most frequently in neuropathic or neurasthenic individuals. These are the cases formerly called neurogenous diabetes, but are really cases of true diabetes. Undue attention to the nervous factors may cause a dangerous neglect of the dietetic factors. The aim should be to prevent a slight diabetes from passing into the severe form. It is customary in many instances to give all foods to neurasthenic diabetics, on the plea that the limitation in diet disquiets them; this conception is false. Do not advo-

¹ Abstract of Course of Lectures on Diabetes Mellitus.

² Delivered before the University and Bellevue Hospital Medical College, New York.

cate a one-sided treatment of diabetes in these cases, for they may be benefited by an adequate recognition of the nervous factors. Frequently removal from the wear and tear of life is sufficient. In some cases, in spite of the treatment of the nervous system, the alimentary diabetes remains. Treatment of the nervous factors may require soothing remedies, as potassium iodide, codeine; sanatorium treatment may help Syphilitic affections may produce glycosuria through the nervous system. There may be a syphilitic meningitis. The syphilitic lesions of the pancreas are frequent; they are chronic induration; parenchymatous pancreatitis seen frequently in children, with the history that the parents had syphilis at the time of conception. There are metasyphilitic diseases which affect the pancreas. Von Noorden agrees with Alfred Meyer, of New York, that corrosive sublimate may improve certain cases of diabetes; but there are only half a dozen cases in the literature of the cure of diabetes by means of antisyphilitic remedies. It is worth while to continue experiments along this line with this caution: diabetics are very sensitive to mercury. Organotherapy has been directed against the causes of glycosuria and hyperglycemia, with a view to promote glycolysis. The pancreas preparations deserve first mention. Ten different preparations have been tested in von Noorden's clinic; extracts were given by stomach and subcutaneously; it is now agreed that they all have no effect. They are, however, good for other things, as the digestion of fats, which is impaired in many cases. Cohnheim's mixed extracts of muscle and pancreas have been recommended by Croftan, of Chicago, but since Cohnheim's experiments have not been verified, these extracts are not recommended. Thyroid and suprarenal extracts have been used, but these may themselves produce glycosuria. Liver extracts were recommended in France years ago. These have been tried without effect. In spite of all the disappointing results, many possibilities lie in organotherapy. We ought to obtain from organs substances that increase the capacity of the body to metabolize sugar. The number of drugs that have been recommended in the treatment of diabetes is surprisingly large. Only the more important ones will be considered. Opium deserves first consideration. It is useful, but has been greatly misused. Patients have been turned into true opium-eaters without relief of the diabetes. While the patient is excreting large quantities of sugar, opium is not indicated. It is useful in cases in which the glycosuria has already been reduced, say, to 20 grams per day by appropriate diet. Having thus reduced the sugar to a minimum, energetic opium treatment will cause the entire disappearance of the sugar; .12 to .15 grams of codeine daily is necessary. Diabetics stand opium well. At first experiencing as the result of its use, fatigue, relaxation of muscles and loss of appetite, they soon become accustomed to the drug. This remedy is valuable in attaining the end sought. The *modus operandi* of opium in diabetes is unknown; possibly it cuts off the nervous influence. The second drug to deserve consideration is salicylic acid and its derivatives, as aspirin, which last is the best, injuring the alimentary canal the least. Salicylic acid is useful in those cases in which opium is not. The former is good in slight cases and during the time when carbohydrates are permitted. It improves the assimilation of the carbohydrates. Cases which can stand only 60 grams of carbohydrate without salicylic acid can take 100

grams of carbohydrate, if they also take 3 grams of salicylic acid a day. This drug has a more marked effect in reducing the quantity of sugar than an equal quantity of antipyrine. Salicylic acid is contraindicated if there is any renal complication, and both salicylic acid and antipyrine if there is gastro-intestinal irritability. It has been found that the dried fruits and the extracts of *syzygium* *jarubulanum* counteract the effects of phloridzin diabetes. It is doubtful if true diabetes can be ameliorated by it. Both successes and failures have been reported from its use. A happy mean, however, may be followed. In some cases this drug has diminished by 20 grams the amount of sugar in the urine, but the good effects ceased after three or four weeks. It cannot be predicted in any given case that jambul will or will not have a beneficial effect. Experiment will alone determine this. Just like salicylic acid it may be used for three or four weeks at a time. It is not surprising that the credulity of diabetics has fostered the large number of quack remedies, which has been applied in the treatment of this disease. The treatment in health resorts has been unduly relied upon. The chief one of these is Carlsbad, with its alkaline sulphuric waters. The advantages claimed for the health resorts are mostly humbug. The alkalinity of the waters is not sufficient to have any effect upon that of the blood. The patient may get much more alkali at home than can be gotten at the spas. But acidosis is, in fact, not much lessened by large doses of alkali. The Carlsbad cure should be looked upon as a unity if its beneficial effects are to be explained. The Carlsbad water, if employed at home, is not as efficient. It is a fact that many diabetics return home from Carlsbad with their tolerance for carbohydrates improved. There are five factors that enter into this cure: (1) The patient is completely removed from the worries of daily life. (2) There is a long stay and plenty of outdoor exercise. Some diabetics cannot stand severe muscular work; but some patients are benefited by long walks, which diminish the glycosuria. (3) The diet in health resorts is carefully regulated, although the dietary is not very much restricted, for the combination of the alkaline waters and a very strict diet has a tendency to make the patient nervous and weak. (4) The physicians of the Spa are well experienced in the treatment of diabetes, which is of eminent importance in the whole cure. (5) The balneology and the internal use of the mineral waters favorably influence many complications, such as digestive disturbances, obesity, gout, etc. The two essentials in the therapy of diabetes are a general regulation of the mode of life and a regulation of the diet. These do not apply to the same extent in any other disease.

SIXTH LECTURE—OCTOBER 14, 1905.

The Dietetic Treatment of Diabetes.—The dietetic measures which have been adopted in diabetes are established on two kinds of experiences. (1) On the return to the usual diet the patient may excrete much less sugar than before. In one patient the result may be transient; in another, permanent. (2) If we do not try to combat the glycosuria, the patient's power of assimilating carbohydrates gets less and less. This decrease of the tolerating power sometimes occurs in spite of the best of treatment. There is no doubt about the fact which has been well established by experience, namely, all those measures that diminish the glycosuria diminish the liability to and the severity of the complications. In the dietetic

treatment other things besides the sugar content of the urine should be taken into account. They are the behavior of the aceton bodies, the condition of the stomach, the comfort of the patient, and the condition of the central nervous system. It is the patient who is to be treated and not the symptoms, nor is it from books that one can learn to steer aright. The goal should be the reduction of the glycosuria to the lowest possible limit. This must never be lost sight of. It is only in quite hopeless cases that this can be forgotten. It is necessary to determine in every case the exact amount of carbohydrate the patient can tolerate. For this purpose the test-diet of von Noorden has been almost universally adopted in Europe. The foods are divided into two groups: (1) The principal articles of diet; these are substances practically free from carbohydrate, and form the basis of the three meals. (2) The accessory articles of diet. In the test-diet the patient is given 100 grams of bread per day, 50 for breakfast and 50 for lunch. If no sugar is found in the urine the amount of bread is gradually increased until sugar appears. This represents the capacity of tolerance for carbohydrates. Or if sugar is first found in the urine with a diet of 100 grams of bread a day, this quantity is decreased gradually until the sugar disappears. When urine is free from sugar while the patient is on a bread diet, it is a case of slight diabetes. In some cases the urine is free from sugar as soon as the diet contains no carbohydrate. These are the moderately severe cases. In the severe cases the proteid in the diet must be reduced as well to cause a disappearance of the sugar in the urine. In the very severe or grave cases even the reduction in the proteids does not suffice to remove the sugar from the urine. There are other special matters which are of great importance in determining the tolerance of the patient. The influence of rest and muscular movement must be studied. Some patients can tolerate much more carbohydrate when taking exercise; others act otherwise. The influence of the time of day when the carbohydrate is taken is of importance. Some patients are extremely sensitive in the early morning, while they can tolerate much more carbohydrate in the middle of the day; with others it is the reverse. Sometimes the carbohydrates are better tolerated in small and frequent doses. Moreover, the toleration power for different kinds of carbohydrate should be studied. Some can stand sugar of milk better than others. Some patients can stand starch better than sugar. It is often found that the starch of oats is better borne than that of rye and wheat. The influence of medicines, alcoholic drinks and mineral waters should also be studied. Only in this way can a satisfactory basis for treatment be instituted. Schematic rules are good only for a very small number of patients. Having determined the tolerance of the patient and the various factors that influence it, then begin the actual treatment. The broader the experience of the physician in the treatment of diabetes the greater is the variety of his modes of treatment. The treatment for only certain groups of cases can here be outlined. In all slight cases the patient must first go through a period of restricted diet during which all carbohydrates are prohibited. This period succeeds in raising the tolerating power of the patient. After this the carbohydrate is added gradually. Care should be taken that the carbohydrates are kept well below the assimilating capacity, and that the urine is kept free from sugar. The patient is advised to abstain

from time to time, for periods of one or two weeks, entirely from carbohydrates. A weighing machine is a valuable accessory. Loss of weight should not exceed one pound for a week. Much has been said and written against the strict diet cures. There is no need for prolonged periods of restricted diet in the slight cases; restricted diet for only 2 or 3 weeks at a time is all that is necessary. There are three points to be borne in mind. (1) Nervous people cannot stand restricted diet well. (2) It is commonly said that a restricted diet is not to be recommended when albumin is in the urine; with this von Noorden agrees only so far as not to allow a prolonged restricted diet when marked nephritis is present. It is indicated only for two or three weeks at a time. Care should be taken that the amount of proteids and extractives in the urine are not inordinately increased. For the first few days the albumin increases, then it steadily diminishes. Cases may be quoted in which not only the sugar, but also the albumen disappeared, which shows that the disturbance of the renal epithelium may be the result of the diabetic condition. It has been said that restriction of the carbohydrates leads to acetonuria. It is true that during the first few days a marked reaction occurs. This is also the case in the healthy individual. If the restricted diet be continued the aceton bodies gradually disappear after eight or ten days. It is necessary to make quantitative examinations of aceton; if this is within physiological limits no danger results. If in cases of slight diabetes the acetonuria exceeds these limits, then it may not be well to persist in the restricted diet. Much depends on the study of each separate case and its treatment or its own merits. In the slight cases one should endeavor to remove the glycosuria entirely. The physician should strive to raise the toleration limit. He should interest himself in the mode of preparation of the food. A temporary course of treatment is recommended in the clinic for a short time for its educational influence; the patient may here learn the best mode of preparing his food. He will also learn to appreciate the significance of his tolerating capacity. One cannot draw a sharp line between the slight cases and the moderately severe ones. In some cases 60 to 80 grams of bread can be well tolerated for days. If you cannot get the urine entirely free from sugar do not persist. In the severe cases 60 to 80 grams of carbohydrates cannot be tolerated and more than 12 to 14 grams of nitrogen appear in the urine. In these cases an 8 or 10-day period, in which the urine is free from sugar, is intercalated every 6 or 8 weeks. These periods are followed by improvement. The slighter forms of diabetes are the least dangerous of all the chronic diseases. In them there is much to be gained and much to be lost, depending on the institution and not of the proper dietetic treatment. In the management of the severe cases begin with a long period of restricted diet. Besides the cutting out of all carbohydrates, the meat is restricted to 200 grams, weighed when cooked. The vegetable proteids are tolerated better than those of meat. There should be periods of two or three days each, during which the proteids are reduced to the utmost minimum. These are the "green" or vegetable days. An abundance of alkali must always accompany this restricted diet, for the aceton bodies, which increase in amount, must be neutralized. Daily analyses of the aceton bodies should be made. This can be done well only in an institution. The danger

of the onset of coma from increase of the acetone bodies in the blood is small, if the practitioner remains master of the situation. It is astonishing how the muscular power increases. After the long initial period of restricted diet, 80 to 100 grams of bread are allowed daily. Proteids are permanently reduced, so that no more than 12 to 14 grams of nitrogen appear in the urine. There are intercalated periods of two or three days, during which no carbohydrates are allowed, and also one "green" day, both occurring twice a month. It is sometimes better to have these periods closer together. Once or twice in each year the patient should return to the restricted diet. The question often arises whether such patients should be given the Carlsbad cure. This, however, does not include the real restricted diet. There is one kind of treatment which is of great practical importance, although theoretically it is not explicable. The oat cure recommended by von Noorden several years ago was discovered accidentally. A number of diabetics in the hospital were given, on account of gastrointestinal irritability, nothing but oatmeal gruel. It was found that this caused a marked diminution of the glycosuria. The oat cure which this happy discovery gave rise to is as follows. The patient is given 200 to 250 grams of oatmeal daily, taken in the form of a gruel. The patient is also allowed 300 grams of butter and 100 grams of albumin from eggs and a little old wine or cognac. After three or four days there follow one or two vegetable days, which are repeated from time to time. In the beginning the glycosuria increases, but later it decreases. In some cases the urine may become entirely free from sugar. The following table illustrates the effect of the oatmeal cure on a case of severe diabetes. The FeCl_3 reaction refers to the presence of diacetic acid:

Day	Diet	Sugar (grams.)	Acetone (grams.)	FeCl_3 (Reaction)	NH_3 (grams.)
1	Restricted diet	50.4	2.1	+++	3.2
2	Restricted diet	48.3	2.4	+++	3.8
3	Restricted diet	58.9	3.1	+++	4.3
4	Vegetable, day	28.2	2.1	+++	2.9
5	Vegetable, day	20.3	1.9	+++	2.8
6	Oatmeal, 250.	38.3	1.9	+++	2.4
7	Oatmeal, 250.	40.3	1.3	+++	1.6
8	Oatmeal, 250.	30. .	0.9	+++	1.5
9	Oatmeal, 250.	20.1	0.6	+++	1.1
10	Vegetable, day	8. .	0.8	+++	1.3
11	Vegetable, day	2.3	1.2	+++	1.8
12	Oatmeal.	18.3	0.5	o	0.9
13	Oatmeal.	5.6	0.1	o	1.0
14	Oatmeal.	0.0	0.1	o	0.8
15	Vegetable, day	0.0	0.1	o	0.8
16	Vegetable, day	0.0	0.1	o	0.8
17	Restricted diet	0.0	0.5	o	0.7
18	Restricted diet	0.0	0.1	o	1.0
19	Restricted diet + 20 gr. oatmeal.	0.0	0.12	o	0.9
20	Restricted diet + 20 gr. oatmeal.	0.0	0.13	o	2.8

In this case is to be clearly noted the fact that the sugar went down to zero during the oatmeal days, and continued so during the green days and the days of restricted diet, during which no oatmeal was administered. The cases in which the oat cure is effective belong to the severe form, including the forms seen on children. There are some severe cases in which it has no effect. It is a failure in mild cases. Incipient coma has been fended off by its use. No other carbohydrate should be allowed with the oatmeal, nor is meat permitted. Success has

been obtained by other physicians in the application of this cure, and some failures have been reported. Von Noorden has already tried it in 300 cases. In some cases edema develops during the oat cure, although diabetics do not ordinarily manifest edema. This ceases on stopping the oatmeal diet. This latter represents 150 to 160 grams of pure oat-starch a day. Von Duhring has described the same good results with pure rice flour. The potato cure of Musset excludes all other carbohydrates, and requires a diminution of the meat. Von Noorden has tried this method and found that potatoes can be tolerated better than one would suppose. Comparing the oat cure with the potato cure in the same patient, the superiority of the former has been proved. There are, however, some cases which respond better to the potato cure. Underlying all these cures is the principle of limiting the carbohydrates to one kind and excluding or diminishing greatly the amount of meat. The diabetic may retain the power of assimilating one kind of carbohydrate. An attempt has been made to explain this fact on the basis of the existence of specific diastases and anti-diastases in the blood. But this has not been discovered. It is important to possess means of mastering the acetone in the urine. It is a great advantage for periods of a week or 10 days to have the tissues entirely free from acetone. A number of important problems remains to be solved in the domain of diabetes. Many laboratory assistants are necessary to attack these. It is to America that Europe turns for an ample contribution to this subject.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Twenty-second Annual Meeting, held at the Academy of Medicine, New York City, October 16, 17, 18 and 19, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

THIRD DAY—OCTOBER 18TH (Continued).

(Continued from Page 861.)

Dr. Edgar said that in treatment as little chloroform as possible should be used, since its toxic action resembles too closely that of the toxins already in the circulation. Personally he uses morphine rarely; chloroform he uses occasionally at the beginning of the treatment, and then usually follows it up with veratrum viride and chloride. Drugs are not effective as a rule, and it is a question of prophylaxis that is most promising.

In closing the discussion, Dr. Cooke, of New York City, said that the most important matter is to train patients to consider pregnancy as a condition, the symptoms of which have to be watched very carefully. Headaches that persist must not be neglected, the urine must be examined frequently, and the patient's general condition kept under observation. This training of patients will prove very helpful.

Essential Similarity.—Dr. James Ewing, in replying, at the end of the discussion, said that the essential pathological condition which underlies eclampsia, pernicious vomiting and acute yellow atrophy, is a decreased oxidation in the system. No distinction in the pathological condition, produced by this process in the various ailments, has been made clear to pathologists, so that no pathological distinction can be drawn. There is a distinct predisposition to fatty

degeneration in pregnancy; hence the special danger of the use of chloroform, which has a tendency to heighten fatty degeneration.

Dr. Stone said that as yet not much is known about these three conditions to make a division possible.

Danger of Chloroform.—Dr. Cohen emphasized the fact that beside the danger of chloroform it is of no use, except for the moment. Its employment, indeed, was more due to the wish of the doctor to be doing something than to any special benefit that seemed to accrue from its employment. In autopsies upon fatal cases of eclampsia, not alone the liver, but the kidneys, the brain, the intestinal tract and all the more important organs should be carefully looked to.

Dr. David Austin, of New York, said that in forty years of practice he has seen six cases of eclampsia, all of which fortunately recovered. He considers that albuminuria is still of importance as an index, and that anesthesia with manual dilatation and rapid delivery is the best treatment in severe cases.

Eclampsia and Neurosis.—Dr. James J. Walsh, of New York, said that pregnancy is, after all, a physiological and not a pathological condition. Some of the recommendations that the urine must be examined oftener even than once a month would tend to make patients morbidly fearful as to the possibilities of their condition. Most women, especially in this generation, are quite timorous about the danger of child-bearing, and if this is added to and even exaggerated by constant dwelling upon the thought, serious neurotic conditions will develop even in sensible women. Not a few of the cases of eclampsia, so called, are really hysterical seizures brought on by this too great introspection and nervousness. Dr. Walsh has seen two cases in which fetuses were removed because of convulsive seizures, the origin of which, to his mind, was rather nervous than toxic. Almost needless to say, if a woman has once gone through an experience of this kind it is practically impossible for her to go through another pregnancy without nervous incidents of serious character. With regard to the removal of the fetus, it must not be forgotten that, according to the laws of the State of New York, the fetus is a human being whose life must not be sacrificed unless it is definitely decided that two lives are in imminent danger and only one can be saved. Even though impending loss of sight should be a feature of the case, the premature removal of the fetus is not justified by law unless the life of the mother is in danger. The moral law may have a still higher claim than this, but at least in the New York State Medical Association no opinion should be expressed in a matter involving murder that would contravene the State laws.

Resection of the Bladder.—Dr. Howard Kelly, of Baltimore, said that cystitis in women constituted one of the most intractable of diseases and sometimes proved obstinate to nearly all treatment. When a case of cystitis comes, first all ordinary remedies must be employed. Irrigation and systematic distention are the most important of early remedies. After this, topical applications should be made, for the condition of cystitis never involves the whole bladder, but only certain portions of it. If the affection does not yield, then the curette should be employed, except in the neighborhood ureters. Emmet's old-time method of draining through the vagina is an excellent one, and well deserves to keep its place as an effective method of treatment. Not-

withstanding all of these methods, however, two to three per cent. of the cases of cystitis are not cured, or if cured, relapse. It is for these residual intractable cases that Dr. Kelly has resected the bladder in a number of instances removing the diseased portion and obtaining excellent results.

Dr. Vineburg, in discussing Dr. Kelly's paper, said that he has used some of Dr. Kelly's methods, and has found them of excellent service. Silver nitrate as a topical application has proven especially effective. When this does not do good, he is nearly always convinced that the case is really tuberculous cystitis, and that the kidney is nearly always involved at the same time.

FOURTH DAY.—THURSDAY, OCTOBER 19TH.

Spontaneous Cure in Cancer.—Dr. Harvey R. Gaylord, of Buffalo, N. Y., discussed the spontaneous cure sometimes seen in cancer and its significance in relation to the ultimate solution of the problem of the cure of cancer. In mice the observation of the spontaneous cure of cancer is easy to make and to substantiate. The mice, not being long-lived, represent a condensation of vital processes both in their tissues and the malignant neoplasm. Dr. Gaylord has in his observations found that if the malignant tumors of mice are disturbed by hemorrhages, then they are especially likely to regress. Cancer inoculations also lose their effectiveness if mixed with blood serum before being injected into the animals. In a word, the blood seems to contain elements that hamper the activity of cancer growth. Bashford, in England, has found that the injection of adrenalin by causing minute hemorrhages will have the same effect in inducing regression of the tumor as the passing of needles into it.

Explanation of Phenomena.—It seems evident that there is a certain immunity to cancer which, however, can be overcome. After the tumor has reached a certain size, injury to it and hemorrhage into it instead of causing regression causes it to grow larger more rapidly. There has been loss of immunity and the malignant elements assume full sway. At the beginning, anything that will embarrass the tumor helps the immunity to exert its effect. If an animal is heavily bled, however, it seems to lose its immune factors. Spontaneous cures in human beings seem to resemble those seen in animals. Coley's fluid, for instance, brings about a fatty degeneration of the malignant cells, embarrasses the tumor for a time, and then the natural immunity exerts itself. Spontaneous cure in human beings is rare, and yet, as in the corresponding cases of tuberculosis, it may be much more frequent than is to be thought. It seems evident that these new observations will open avenues to development of practical knowledge with regard to cancer.

Some Spontaneous Cures.—Dr. William B. Coley said that Frick had called attention to the fact that in the old days when cancers of the lip were removed without trying to reach all of the glands involved, complete cures were not unusual. It is evident that in many of these cases spontaneous regression of cancer elements that had found their way into neighboring glands was far more frequent than might be thought. It seems probable that the correct explanation of the X-ray's action upon cancer and also of the influence of the toxins upon malignant disease can be best expressed in term of the awakened immunity which comes in play when the tumor is influenced for the worse by these agents. Per-

sonally, Dr. Coley does not consider that the mixed toxins are of special service in the treatment of carcinoma, though some cases of true cancer have cured spontaneously after an attack of erysipelas. The toxins are useful in sarcoma, and evidently produce their result by embarrassing the growth of the tumor for a time.

Dr. Frederick, of Buffalo, reported a case of spontaneous cure of cancer in a woman of forty years, who has all the clinical signs, the fetor, the discharge, the tumor and the cachexia. In this case microscopic examination of a specimen, not deliberately taken, but which had clung to his glove, showed that the tumor was really cancerous. The case seemed hopeless, and yet the woman presented herself a year later with good cicatrices and in excellent health.

Dr. Dunning reported a case of spontaneous cure of cancer, in which all the clinical symptoms had been present, though no microscopic examination was made. Death seemed inevitable, yet the woman recovered completely.

Dr. Charles P. Noble, of Philadelphia, reported a case in which a large deciduoma malignum had developed so late in pregnancy as to be one of the latest on record. The tumor was very extensive; it was impossible to remove it all, especially from the anterior wall of the bladder, yet the woman not only got better, but continued in good health for four years. She then failed in health, and there was question of a recurrence of the tumor, but death took place from heart disease.

Serum for Cancer.—Dr. Harvey Gaylord, in closing the discussion, said that Rutter reported a case in which there was a cancer of the rectum removed, the diagnosis of malignancy being confirmed by Orth. There was a large cauliflower recurrence which seemed to be inoperable, yet it got better spontaneously. Later the man died from internal cancer, but as he had polyposis of the intestines, and these often degenerate malignantly, it is possible that what he had was not a recurrence, but another primary cancer. Dr. Gaylord has found that the serum of mice who recover from cancer possesses a special curative value when injected into other mice suffering from cancer. It seems not unlikely, therefore, that this method of producing a remedy for cancer will yet prove of service to human beings. Cancer malignancy depends to a great extent on the special tumor variety. There is no doubt that by passage through a susceptible animal cancer cells may be made more malignant than before. Early has succeeded in this way in producing a cancer which grows its own bulk in eight days, and produced sixty generations per year. Bashford, in England, has found a venereal tumor which is constantly communicated from one animal to another, and which has all the earmarks of malignancy, including spread by metastasis.

Therapy of Cancer.—Dr. Samuel Lloyd, of New York, discussed the present situation as to the treatment of cancer. Nearly 43 per cent. of those who have been treated surgically by the radical method for cancer of the breast during the last ten years at Johns Hopkins, have survived the three-year period. Dr. Rodman, of Philadelphia, collected the statistics of over 600 operations, 44 per cent. of which showed survival three years after the operation. A discussion of these cases shows that 27 per cent. of them were really inoperable when they came to operation because the affection had already be-

come constitutional. The surgical statistics, then, of cancer of the breast are most encouraging. There are many who seem to think still that a woman is doomed who is suffering from cancer of the breast; but this is by no means the case, as these statistics show, and nearly one-half of them can have their life prolonged for at least three years, and some of them live on without recurrence.

Necessity of Early Diagnosis.—In the present state of the knowledge of cancer, it is a disgrace for a physician to allow a cancer case under his care to go on to the inoperable condition. It is nonsense to wait until the axillary glands are enlarged, since these only enlarge if the cancer is in the anterior portion of the breast. Cancer in the posterior portions spreads along the lymphatics to the muscles beneath the breast and to within the thorax. Until it is made clear to every practitioner's mind that cancer must not be neglected, and that early diagnosis means the salvation of most cases, any further improvement in cancer statistics cannot be expected.

Cancer Communicable.—Dr. Lloyd is of the opinion that cancer is a communicable disease. The reasons for this are, first, its great increase in modern times, the fact that cancer is most frequent where population is thickest, that, for instance, it is more common according to the numbers of the population in the poorer districts in Paris than in any other, that it seems to follow certain water-courses, that it becomes connected with houses, and that so many cases that are seen by surgeons can be readily traced to possibilities of communication. For instance, it is not unusual to find cancer occurring in those who are closely associated with one another. Dr. Lloyd has recently seen a cancer of the tongue in a workman who had been with another workman suffering from the same disease. He has seen it in two brothers who were living in intimate association. In a brother and sister, where one had nursed the other; in a wife and husband, who had been very much together. These are only a few of the cases of his recent experience, but serve to show the necessity for keeping this important matter of the communicability of cancer before the mind.

Cancer Parasites.—Of the possible presence of parasites in cancer, there is as yet no definite knowledge. Orth has declared that if there are parasites, they are very different to bacteria. Every cancer is epithelial in character, even though it may not be on the surface of the body. Just why epithelial cells overgrow, in order to produce malignancy, cannot be determined.

Prophylaxis.—All collections of epithelial cells, likely to be the subject of irritation, should be removed; hence, all ulcers and calculi in various portions of the body should be treated by radical methods. Ulcers of the stomach are almost surely more frequently the origin of cancer than has been thought, since the topography of the two diseases is the same. Gall-stones especially need to be treated, in order to prevent the possibility of cancer development. Dr. Lloyd does not believe in the X-rays as a prophylaxis of cancer, though they may be of some help after operation. For use before operations they are dangerous. The immediate effect is an obliterative endarteritis. The consequence of this may be, if an operation follows, extensive gangrenous tissues. Not a single permanent cure by the X-rays of a deep-seated cancer has been reported. Pastes are dangerous in the treatment of cancer,

and for superficial face cancers Dr. Lloyd has found butter of antimony better than paste, since it produces no pain and leaves a smooth scar. Even for superficial cancers, excision is best, as soon as the cancer is recognized.

Communication of Cancer.—Dr. Wm. B. Coley said, in the discussion, that he also believes in the conveyance of cancer. Recent cases which have occurred to him are cancer in two sisters, cancer of the rectum of a man and his mother, who had been very much associated, and others of the same nature. Hence he always insists on the care of nurses with dressings for cancer, just as if it were septic, and there is no doubt at all that the wound itself of an operation may become infected from another portion of cancerous tissue.

Failure of X-rays.—In forty cases of inoperable cancer of the breast, treated by R-rays, only one cure was effected, and even in this the other breast, after a time, developed the disease. Pea-sized nodules of cancer continue to increase in size, while the X-rays are being used. In sarcoma every reported case of cure has relapsed. In a recent foreign trip he found that this same conclusion was reached at Heidelberg and by Mikulicz at Breslau. At the Middlesex Hospital in England and the statistics of the Boston, Mass., General Hospital, show the same conclusion. At all of these places special attention has been given to the subject. No positive benefit seems to be produced by radium. With regard to the toxins, while effective with regard to sarcoma in certain cases, they have practically no place in the treatment of cancer. An occasional recovery from carcinoma after erysipelas takes place, but is rare. Dr. Coley has seen cases of sarcoma that seemed to have been inoperable, which have been treated by the toxins and are now well from three to twelve years.

(To be Continued.)

BOOK REVIEWS.

PSYCHIATRY: A Text Book for Students and Physicians. By STEWART PATON, M.D., Associate in Psychiatry Johns Hopkins University, Baltimore; Director of the Laboratory, the Sheppard and Enoch Pratt Hospital, Towson, Maryland. J. B. Lippincott Company, Philadelphia.

THE reviewer approaches the consideration of a new text-book on psychiatry with certain misgivings and in an attitude more critical than is the case with text-books dealing with other subjects. This is the result of a series of disappointments, the length of which depends upon the reviewers' experience.

In the last two or three years there have appeared a round dozen or more text-books on insanity. The reason for most of these is hard to find. Whatever may be said about the progress of psychiatry and however willing we may be to admit that there has been a definite increase of our knowledge, it certainly cannot be said that the number of new works on insanity is any measure of the growth of the science. A psychiatrist writes his text-book for one or a combination of the following reasons. He conceives either, that there is a real need for a new work or that he has something new to say or can say something old in a better way, or that his peace of mind and comfort will be restored after he has put on paper some of the burden of uncertainty which torments him. It will generally be found that the reason an author writes a new text-book on

insanity is that he rather than the public feels the need of it.

Paton's text-book differs from many others in the fact that he has given definite expression to certain faults in the organization of insane asylums and in the teaching of psychiatry in this country; and, furthermore, he has pointed out the correct method of changing them. The chapter on the modern hospital for the insane is an admirable exposition of the subject and deserves to be read widely. His insistence on the prime necessity of more accurate clinical observation and more definite notes in respect to the existence and development of fundamental mental anomalies can be regarded as a distinct service to the progress of psychiatry. What it needs, above all things, at present, he says, is a rigid study of cases, but without attempts to form any broad generalization. This expresses his attitude, one which is absolutely impregnable. This is an advanced position, and for that reason it seems a bit strange that Paton should still insist in presenting to his readers a long introduction, filled with abstruse, abstract discussions and quotations from the literature of psychology, mingled with his own opinions. The knowledge shown by the author and his acquaintance with the literature deserves praise, but the wisdom of devoting so much effort and space to this part of the subject is open to serious question. It is to be hoped that some time in the near future there will appear a text-book on psychiatry with the long introductory chapters left to special works, so that the reader can begin as soon as possible to become interested in the proper subject of a treatise on insanity, which is the discussion of cases of insanity. It is particularly to be regretted that the author's statement of the small importance of the usual psychological data should be controverted by pages and pages devoted to the exposition of them. In this respect Paton is following the tradition as old as psychiatry itself.

The chapter on manic-depressive psychosis is well worth especial mention. The author takes an advanced position and illustrates it well by admirable descriptions of cases. The reader longs for more of this kind of clinical exposition. The chapter devoted to dementia præcox will be read with considerable eagerness, for at present the way a writer places this subject before his readers might be taken as a measure of his special ability. Paton represents the prevailing and the best American opinion which considers dementia præcox a rather loosely formed group of adolescent insanities. A clear exposition of Kräpelin's position is given, which of itself will be of great value to those whom the many publications on this subject in the past few years have placed in an uncertain position in regard to just what Kräpelin means. Paton's treatment of the paranoia group deserves more than a word of praise. That paranoia is a rare condition and that paranoia-like symptoms are found in a great number of psychoses are two views which will meet with immediate approval. The excellences of the chapters here mentioned are repeated in many of the others also. Paton's fair and advanced position on many mooted questions is to be commended as well as his clear and explicit method of exposition.

The faults of Paton's book are probably the faults that are inherent in the subject itself. The chief criticism which might be directed against his book is the seeming importance given to what might be broadly termed the psychology of mental diseases as shown by the amount of space given to it and the seeming neglect in the use of the dialectic data thus derived in the main body of the work. In this respect Paton's book

has not made for itself the unique position which in many respects it is entitled to.

Its merit lies in the clear and pleasing style, the sound position taken by the author on many disputed points, the insistence on the importance of the clinical aspect of the subject and the scholarly atmosphere which makes the reading of the book a distinct and an unusual pleasure to those who are deeply interested in psychiatry.

PROGRESSIVE MEDICINE. Edited by HOBART A. HARE, M.D., and H. R. M. LANDIS, M.D. Vol. II, 1905. Lea Brothers & Company, Philadelphia and New York.

As in former years, the second number of the year deals with the advances made in the subjects of Hernia, Surgery of Abdomen, Gynecology, Diseases of the Blood, Diathetic and Metabolic Diseases; Diseases of the Spleen, Thyroid Gland and Lymphatic System; Ophthalmology. A feature in the present number is the increase in the number of contributors.

We can add little to our previous estimates of this quarterly. It is a conscientious and scholarly performance, and the purchaser may feel that nothing important in the field has been omitted.

Now that *Progressive Medicine* has achieved so great a popularity and widespread a use, the reviewer feels that it might add to this well-deserved reception small monographic reviews of smaller topics. The inevitable failing that all works of this class have shown and which in time have led to their decline, has been the monotony of the treatment of the topics. The record of the year's work has been faithfully set down, but beyond this the reader has nothing. Authoritative reviews, running over a series of years, showing the march of progress, might make permanent features of merit, and thus make the volumes more constructively useful.

Notwithstanding the six years of this review's career we have not yet seen any adequate presentation of mental diseases. Such neglect can be explained only on the assumption that the editors seem to be ignorant of the existence of these disorders. We find in the six years over a hundred pages devoted to some minute blood or other disorder that has been observed perhaps a dozen times in ten years, but of affections that are more common and more disastrous than most of the widely written about affections hardly a line. The more strictly nervous disorders are well reviewed by Dr. Spiller, but mental diseases have been entirely neglected. This constitutes a grave defect of this otherwise splendid retrospect.

ON BECOMING BLIND. Advice for the Use of Persons Losing their Sight. By Dr. EMILE JAVAL, Honorary Director of the Ophthalmic Laboratory of the Ecole des Hautes Etudes, Member of the Academy of Medicine. Translated by CARROLL E. EDSON, A.M., M.D., The Macmillan Company, New York; Macmillan & Co., Ltd., London.

DR. JAVAL has written a book which will be interesting to many people. Physicians whose duty it is to encourage and counsel the unfortunate blind when the time for professional service is past, should read with attention the introductory words warning them in hopeless cases, not to conceal from their patients the inevitable end by temporizing treatment and false hopes.

To the blind themselves, and especially those who look forward to the approaching darkness with the splendid fortitude and philosophy of the author the book will be a mine of information, containing most in-

genious suggestions of methods of work, and details of the most varied kind regarding the conduct of life, the cultivation of independence, and the social relations.

It is perhaps the general reader who may be brought in contact with blind people who should profit most by this little book. It is the farthest from the intention of the author to lay stress on the pathetic helplessness of his fellow sufferers, but here and there are instances which show how the blind are at the mercy of tactless and unsympathetic companions, and the devices adopted to escape humiliation are very touching.

It is impossible to cite passages—the entire book must be read and remembered, for all of us may be so placed that the happiness of the blind or deaf or helpless in other ways may depend on our unconsidered words or acts.

The admirable style, the fertility of resource, the human interest of this book insure for it a wide success, and contradict the author's misgivings; indeed we venture the opinion that it will live longer, and be more widely known, and a greater boon to the world than any of the more distinguished productions of Dr. Javal's pen. It is remarkable that there are already two English translations. The one under consideration is excellent, although exception may be taken to the use of the vernacular in a few instances, and possibly to the translation of the title—*Entre Aveugles*.

The publisher's work leaves nothing to be desired.

An appendix has been added giving information regarding books and library facilities for American readers.

DISEASES OF THE EYE AND EAR. A Manual for Students and Practitioners. By ARTHUR N. ALLING, M.D., Clinical Professor of Ophthalmology in the Yale University, Department of Medicine, and OVIDUS ARTHUR GRIFFIN, B.S., M.D., late Demonstrator of Ophthalmology and Otology University of Michigan, and Oculist and Aurist University Hospital, Ann Arbor, Michigan. The Medical Epitome Series. Lea Brothers & Company, New York and Philadelphia.

THIS is an excellent little book, one of the best of its kind. It is of necessity extremely brief, but clear, and calculated to give the student or general practitioner much valuable information regarding the nature of diseases of the eye and ear, and the essential but simple methods of treatment.

THE EYE, MIND ENERGY AND MATTER. By CHALMERS PRENTICE, M.D., Chicago. Published by the Author.

THE author indulges in generalizations for which there is often a basis of fact, but in the present day of precision such loose theorizing is out of place.

The book represents the extreme of faddism, about which enough has been written in these columns to show the danger to unscientific minds.

BOOKS RECEIVED.

EIGHTEENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF OHIO. 8vo, 569 pages. 1903. Illustrated.

MODERN DIETETICS IN THE CAUSATION OF DISEASE. By Dr. J. Sim Wallace. 8vo, 87 pages. Bailliere, Tindall & Cox, London.

GLANDERS; ITS DIAGNOSIS AND PREVENTION. By Dr. Wm. B. Wherry. 8vo, 25 pages. Illustrated. Bureau of Public Printing, Manila.

FRACTURES AND DISLOCATIONS. By Dr. L. A. Stimson. Fourth edition. 8vo, 844 pages. Illustrated. Lea Brothers and Co., Philadelphia and New York.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, NOVEMBER 11, 1905.

No. 20.

ORIGINAL ARTICLES.

THE SEA-AIR TREATMENT OF TUBERCULOSIS OF THE BONES AND GLANDS IN CHILDREN.¹

BY JOHN WINTERS BRANNAN, M.D.,
OF NEW YORK.

DURING the past twelve months I have had the opportunity of watching the tonic effects of sea air upon children suffering from tuberculosis of the bones and glands, and I trust that a brief account of my observations may be of interest to the members of this Association.

For more than twenty years the hygienic treatment of pulmonary tuberculosis in adults has received constantly increasing attention in Europe and this country, but the form of tuberculosis peculiar to children has been practically neglected, except in its surgical aspects. France is almost the only country in which there has been any systematic attempt to provide sanatoria for children in the country, and particularly at the seaside. As long ago as 1861, the city of Paris established at Berck-sur-Mer, on the north coast of France, a hospital exclusively for children suffering from tuberculous disease of the bones, joints and glands. It contains over 600 beds. There are also two private hospitals at Berck, one founded some years ago by Baron Rothschild and maintained by his widow. It is a thoroughly well-equipped modern hospital, and contains 100 beds. The other private hospital is the Cazin Perrochaud, of like character, and with accommodations for about 200 patients. The children in these hospitals are from the poorest quarters of Paris. At St. Pol-sur-Mer, also on the north coast of France, is a sanatorium for children maintained by the manufacturing city of Lille. It contains 450 beds, but is about to be replaced by a larger sanatorium of 900 beds. In these hospitals the régime is the same. The patients are kept out of doors through the day on the beach, or on the verandas, which are covered overhead, but open in front and at the sides. The diet is abundant and nutritious, there being four meals a day, consisting of bread and milk, soup, meat, eggs, vegetables and fruit. The patients are allowed as much milk as they like.

The other French hospitals for children, at Hendaye, Ormesson, Villiers-sur-Marne and Noisy le Grand, receive mainly cases of pulmonary tuberculosis, hence I shall not consider them here, except to state that they are well administered and accomplish a great deal of good.

The only institution of the kind in England is the Royal Sea Bathing Hospital at Margate, with a total capacity of 150 beds. Unfortunately, adults

are admitted as well as children, so that only about one half the beds are available for children. It is also to be regretted that the hospital is not open to children under six years of age. It is, of course, most important that patients should enter the hospital as soon as the very earliest symptoms of the disease are observed. At the French sanatoria they are received as early as two years of age, and it is at this age that so many children with disease of the joints may be saved permanent deformity by prompt operation and after treatment in good surroundings. At six years of age a child with tuberculous disease is often past cure. The hospital is also hampered by the so-called letter system, through which many of the beds are filled by chronic and incurable cases which could be equally well cared for at other institutions. The hospital is, however, well conducted and renders efficient service, in spite of the drawbacks I have mentioned. It is the opinion of the senior surgeon, after fifteen years of constant work in the wards, that the knife plays a very secondary part to climatic and general influences. In many cases the shock of the operation so diminishes the vitality and power of resistance of the patient that the tubercle bacilli are enabled to start a new focus of trouble elsewhere. When, however, operations become absolutely necessary, progress is much more rapid when patients can live an outdoor life in the open air.

About a year ago the New York Association for Improving the Condition of the Poor, hearing of the methods followed at the French seaside sanatoria, requested Mr. John Seely Ward, Jr., one of its vice-presidents, to visit the institutions at Berck. On Mr. Ward's return to this country his report of his observations was so favorable that the Association decided to establish at least a temporary hospital for tuberculous children on the seashore near New York. At all the sanatoria visited by Mr. Ward the testimony of the attending surgeons was the same,—that residence at the seashore, with the greater part of the twenty-four hours spent in the open air, did more for the children than could be accomplished even in the best-appointed hospitals in the cities. The strengthening effect of the sea air was such that operations, such as must constantly be resorted to in tuberculosis of the bones, joints and glands, when the patients live in cities, are rarely necessary, provided the cases remain for a sufficient length of time at the seashore. It is the belief of these French observers that the sea air is much more invigorating to the children than inland air.

In order to carry out the ideas of Mr. Ward, the Association, in the early part of June, 1904,

¹ Read by title at the Annual Meeting of the American Climatological Association at Detroit, June 29, 1905.

leased a plot of ground on the shore of Coney Island adjoining Sea Breeze, the Summer Home which has been maintained for so many years by the Association for the children of the tenements of the city. It was determined that for the purposes of the experiment a tent camp should be built, and some tent cottages were constructed, four to be used for wards, the others for nurses, dressing-room, dining-room, kitchen and isolating room. Eight of the tents were arranged in an octagon, with a board walk connecting them and enclosing a playground of sand thirty feet wide. The tents had wooden floors raised eighteen inches from the ground, and sides of wood for the lower three feet. Some fifty-four children in all were taken care of during the summer.

selves were thoroughly ventilated by wide-open windows at both ends and the sides, as well as openings in the roof protected by the usual canvas fly. Following the custom prevailing in the French hospitals, a very generous dietary was provided. In addition to the three regular meals, the children received milk and crackers in the middle of the morning, and milk and crackers or some other form of nourishment in the middle of the afternoon. No attempt was made to select the cases; they were of the usual grade of severity that is found in the orthopedic wards of the children's hospitals of the city. Improvement began in the children at once. When they came most of them were pale, languid, rather fretful, with uncertain appetite, and with a disinclination to play

Fig. 1.



View of Tent Camp Hospital.

These children came, some of them direct from the tenements where they had been under the treatment of private or dispensary physicians; others from the different special hospitals in the city, such as the Hospital for the Ruptured and Crippled, the Orthopedic Hospital, the Laura Franklin Hospital, and the orthopedic wards of the Post-Graduate Hospital. They were suffering from hip disease, in various stages, Pott's disease, disease of the long bones, tuberculosis with open sinuses of the ankle; in fact, all the varied forms of bone tuberculosis, as well as tuberculosis of the glands. Not only were the children kept in the open air during the day on the beach, or in rainy weather under a sheltered platform adjoining the tents, but at night the tents them-

or even to talk. Within a week their spirits improved; they slept soundly, awoke with an appetite, were ready to join in play, and it was soon difficult to believe—but for the visible evidence of disease, such as deformity and impairment of motion, and the presence of bandages, braces and plaster-casts—that they were other than the ordinary children one sees at seashore resorts. Their faces became rosy, the circulation improved, and the gain in weight was almost constant. Several patients who were unable to walk when they came, at the end of two or three months were able to run about and play with the others. All the patients were bathed in the salt water every day, and some of them soon learned to take care of themselves in the water. In the case of one boy

who had an open sinus of the ankle, which had been discharging for several years, the wound closed permanently, and he walks about now, helping in the case of the other children without even any stiffness of the joint being apparent.

It was not the intention of the Association to maintain a permanent hospital, but only to demonstrate the value of sea air in the treatment of surgical tuberculosis in children, in the hope that New York City might be convinced that it was

Fig. 2.



Group of Children on Shore—First Summer.

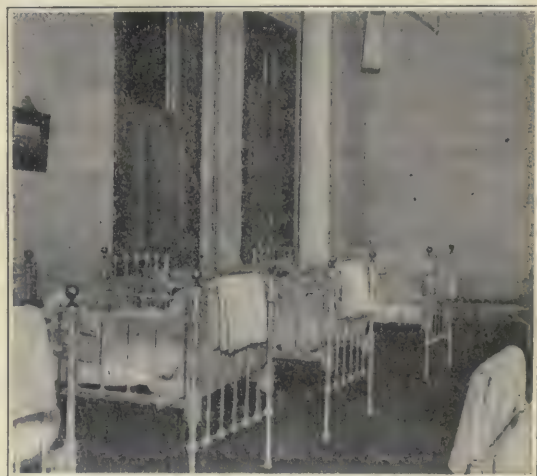
its duty to establish such a place for the thousands of poor children needing it. When the autumn came, however, and it was evident that the children could no longer be kept in tents, those most interested were reluctant to send them back to the old conditions in the city from which they came. It was feared that most, if not all, of them would soon relapse and be almost, if not quite, as badly off as they were before. At Berck the surgeon-in-charge is of the opinion that three years are necessary to effect a permanent cure of an established case of tuberculosis of the bones or joints. After much consideration and discussion, it was finally decided to take one of the buildings at Sea Breeze and make it over so that it would answer for hospital purposes for at least some of the children. The partitions between several rooms were removed, and four dormitories were thus provided which are sufficient to accommodate about forty-five children. Those patients who were least in need of further treatment, or whose parents were best able to care for them at home, were permitted to return to the city. Thirty-two cases were retained, and this number was raised to forty-three before the winter was over. It was determined that with the advent of cold weather the open-air life of the children should be rigorously maintained, and they were kept out of doors practically all day long. Even in stormy weather there were some sheltered nooks on the piazzas, and not even a snowstorm drove them within doors. On Christmas afternoon a large bonfire was built on the beach, and the children were gathered about it, listening to stories of "Brer Fox and Brer Rab-

bit," told by Dr. Charlton Wallace, the orthopedic surgeon who is giving constant care to the children. It was snowing hard all the time; but no one seemed to mind it, nor was the worse for it.

Whenever I have visited the hospital during the past winter I have not only found the children occupying themselves in one way or another on the grounds, about the houses, or on the beach, but the beds of those who could not be up were on the open porch. At night, as well as throughout the day, the windows of the wards are wide open, the temperature in them at night ranging from 12 to 40 degrees, not varying materially from that outside. They are closed one-half hour morning and evening, while the children are being washed and dressed. The children are, of course, warmly clothed, wearing hoods on their heads and mittens on their hands. They sleep soundly from bedtime until six in the morning. One morning during the winter they awoke, and, much to their surprise, found snow upon the coverlets which had drifted in during the night without their knowledge. Now that summer has again come, the sashes of the windows have been removed, that the children may have the fresh air to which they have become accustomed.

In the French hospitals it is the practice to close the windows of the wards at night in the cold weather, so that the air is by no means what it should be, and the gain in health of the chil-

Fig. 3.



Flashlight Photograph at 8 p.m. in Ward in February. Note the Open Windows.

dren must be due to the fresh air enjoyed during the day, together with the abundant food and good care they receive.

On one of my visits to Sea Breeze, and while talking with one of the children who held my hand, I took off my glove; she at once said, "How cold your hand is!" When I replied, "Does it seem cold to you?" she answered, "Yes, see how warm my hands are." Thereupon the other children crowded around, putting out their

hands for me to feel them, and in every case they were as warm as though they had just been held before a fire. As their gloves or mittens were in most cases hanging from their wrists, this was convincing evidence of the vigor of their circulation. A lady who was with me, noticing a pale child in the midst of a group of children, asked what was the matter with him, he "looked so white." The other children answered at once, "Oh, he only came down yesterday." The others were as red and rosy as if they were in perfect health and had been tanned by a summer sun.

Fig. 4.



Daily Scene in Winter—Cribs on Porch.

As soon as it was decided to keep the children through the winter, steps were taken to secure a teacher from the Brooklyn Board of Education. All the patients, including those of the kindergarten age, receive from one to two hours' instruction a day. The lessons are given in a large, well-ventilated room, and when they are over the children are returned to the open air.

I have spoken of the uniform improvement in the general condition of the children, as shown in their appearance, their circulation, their spirits, their appetite, their sound sleep, and their gain in weight, all beginning at once with their coming to the seashore. The improvement in the local lesions has naturally required a longer time to manifest itself, but now at the end of a year we can report marked progress in nearly all the cases, amounting in some to an apparent cure. A few operations have been necessary, but they have not been of such magnitude as to depress the patients. In fact, the rapid progress after operation has been one of the most striking results of the open-air treatment. This accords with the experience of the surgeons at Berck and Margate. I shall not attempt to give a statement in detail of the results in the individual cases, but shall

refer to some features common to all, and then describe briefly a few cases of especial interest.

Of the 43 cases now in the hospital eight have tuberculous glands, and 35 have disease of the spine, or of the hip, knee, ankle or shoulder-joints. Six of the eight glandular cases had deep sinuses on entrance, varying from 2 to 4 in each case, amounting to 16 in all. All of the 8 cases have improved markedly. The glands have not entirely disappeared, but the number of sinuses has been reduced to three.

Of the 35 joint cases, 22 had sinuses leading down to the bone, 57 sinuses in all. This number has been reduced to 44, those that have closed being apparently permanently healed. Only one patient has grown worse, and he has been in the hospital but four months. On entrance he had double psoas abscess due to Pott's disease of long duration. Very few of the cases were in an early stage, many of them having been sent to the hospital because they were steadily losing ground in the city, even under the most favorable conditions that could be obtained there.

Two of the children with Pott's disease in the cervical region who came last summer, wearing a plaster jacket with head support, have left off the head support entirely, and now wear only a plaster corset. They are among the most active and vigorous of the children in the hospital. It is proposed soon to leave off the corset at night, and it is probable that in another year it may be

Fig. 5.



Winter Amusements of Children.

dispensed with entirely. The following cases are selected for a more detailed description, not simply because of the results obtained, but because they illustrate the serious character of the cases that have been under treatment.

Case I.—Margaret D., four years old, admitted September 2, 1904. Tuberculous ankle-joint. The disease began in March, 1903, and in April of that year the patient was admitted to a children's hospital in New York, with the diagnosis of tuberculosis of the ankle-joint. During her stay in the hospital several operations were performed,

including repeated curetting of the tibia. The child, however, failed to improve, and amputation of the leg was advised. The parents refusing their consent, the patient was discharged from the hospital in June, 1904, and in September following she was brought to Sea Breeze. On admission there were five discharging sinuses in the ankle, and the child weighed but $24\frac{1}{2}$ pounds. She soon began to improve, one sinus after another closing, until now there is but one sinus

Fig. 6.



Bed-Patients on Porch—Spring.

open, and the weight has increased to $35\frac{1}{2}$ pounds, a gain of 45 per cent. The patient wears a Thomas knee-brace, and is able to walk alone.

Case II.—Mariano A., thirteen years old, admitted June 10, 1904. Tuberculous ankle-joint. The disease began in 1898, and there is a history of four operations in Italy and one in America. On admission there were two deep sinuses, one over each malleolus, with considerable discharge. The boy, though quite lame, walked about, going into the ocean daily, and coming out with wounds packed with sand. Nevertheless, the discharge diminished and by the autumn had entirely ceased. In February, 1905, both sinuses were closed, with only slight oozing from superficial wound on one side. This has now entirely healed, all dressing is omitted, and with the joint ankylosed at an angle of 95 degrees, the boy walks and plays with no noticeable lameness, and has gained $15\frac{1}{2}$ pounds in weight.

Case III.—Mary McG., nine years old, admitted January 17, 1905. Tuberculous knee-joint, of six years' duration. On admission the child was pale and emaciated, and the knee was much swollen, with a profuse, offensive discharge from two sinuses. In March, the condition is noted as much improved, with less discharge from the knee. In April, the patient, wearing a Thomas knee-brace, was able to run and play with the other children, and with no pain. The improve-

ment has continued steadily, with a gain in weight of nearly 7 pounds in $4\frac{1}{2}$ months. The sinuses have not closed, but the discharge is much less and without odor.

Case IV.—Bertha M., eleven years old, admitted June 19, 1904. Tuberculous hip-joint. The disease began five years ago. The patient had been under treatment in several of the children's hospitals of the city. On admission there was ankylosis of the hip, and the patient's condition was noted as poor. She wore an American brace and used crutches in walking. Improvement began at once, and in December the brace and crutches were set aside and a plaster-of-Paris spica was applied. This the patient has worn with comfort ever since, and she is able to go about freely with the other children. Her general condition is excellent, with a gain in weight of $8\frac{1}{2}$ pounds.

Case V.—Albert G., four years old, admitted January 27, 1905. Pott's disease of spine, of two years' duration. On admission the patient had marked kyphos in the middorsal region, several vertebrae being involved. Although wearing a well-fitted plaster jacket, the boy suffered from constant pain. He had paraplegia, being unable to walk and having no control over the bladder and rectum. The plaster jacket was removed, and the patient was placed upon a modified Bradford frame, to which he was strapped day and night. In two months the control of the sphincters was recovered, and he is now able to walk with support under the arms, and has gained 3 pounds and 3 ounces in weight. The photograph (Fig. 8) shows the method of securing

Fig. 7.



Children on Beach—Second Summer. Note the Legs.

overextension of the spine, and also the happy, contented look of the patient, in spite of his restrained position.

In the foregoing I have dwelt mainly upon the open-air life of the children, as that is my theme; but in addition they have received the best of orthopedic care from Dr. Wallace. Always watchful, but without meddlesome interference, he has aimed to get the patients up and out and on their feet as soon as possible. How

he has accomplished this he has told in detail in a report presented at the recent meeting of the American Orthopedic Association.¹ I shall refer to only two features of his treatment, which seem to me especially worthy of mention. Instead of braces plaster-of-Paris is used in most cases for the fixation of joints, fenestrae being cut when there are sinuses present. It can be readily understood how this procedure aids in getting the children out of bed. In several cases the application of a spica to the hips has enabled the patients to be about in the open air practically all day long.

Dr. Wallace has also found that tuberculous sinuses heal more readily and permanently when all packing and drainage are omitted, and only a sterile absorbent dressing is applied. As the general instability of these patients is such as to

Fig. 8.



Albert G.—Fifth Month on Extension Frame.

cause them to almost collapse at the thought of having their wounds probed and packed, it led him to believe that they would gain strength and local resistance if they were not nervously upset at the time of each dressing. In the beginning, in order to ascertain whether there would be full drainage, the amount of discharge upon each dressing was carefully noted for several days previous to omitting the packing, and compared with that of the succeeding days when packing was omitted. As there was no diminution in the amount of discharge, he concluded that packing or tubing was not essential to drainage. There was also less danger of infection. In no case has there been an infected wound, nor has a sinus healed when it still contained pus. Dr. Wallace puts this treatment forward as a suggestion, as he does not feel that it has had sufficient trial to give conclusive results.

Ontario Board of Health.—The Provincial Board of Health of Ontario will hereafter advocate vaccination and revaccination, a subject which was thoroughly discussed at its regular quarterly meeting in Toronto during the last week of October. An effort will be made to have the Health Act amended to provide for secondary compulsory vaccination. The prevalence of typhoid fever throughout the province was also gone into, as was the care of the men in the lumber camps in the unorganized districts of the province. It was decided to enforce the rules and regulations with regard to physicians being engaged for all lumber camps.

REPORT OF THE COMMITTEE ON THE INFLUENCE OF CLIMATE IN PULMONARY TUBERCULOSIS.¹

BY CHAS. L. MINOR, M.D., E. R. BALDWIN, M.D., S. E. SOLLY, M.D., C. F. MCGAHAN, M.D., HENRY SEWELL, M.D., AND NORMAN BRIDGE, M.D.

THE beneficial influence of wisely selected and properly used climatic influences in the treatment of pulmonary tuberculosis has been one of the accepted facts of therapeutics for centuries, attested by an enormous mass of satisfactory clinical evidence from the days of Hippocrates and Celsus until our own. In medicine, however, there is a wise and healthy tendency to take up and re-examine the foundations of our beliefs, and it is not to be regretted, therefore, that in the past few years, since the general profession has been taking such a lively interest in tuberculosis, there has been a movement to question whether the accepted teaching as to the rôle of climate in the disease is founded on proven facts, and your Committee feels that an examination of the bases of our faith in climato-therapy in tuberculosis is therefore timely.

To the observer in the health resort the evidences of the beneficial or curative effects of climate are so many and so apparently irrefutable; he so constantly has occasion to see them and to be convinced of their reality, that he has difficulty in understanding how they can be doubted. To the practitioner in other regions who has often hoped for impossibly good results from climate in hopeless cases and whose experience in the handling of the disease is limited, the relapse of a partly arrested case on its return home or the failure to improve of some case in a resort seems to him to justify such doubts. The former, while having ample clinical opportunity, is apt to be suspected of partiality and of being affected by his personal interests, the latter lacks the clinical opportunity and is thus handicapped in drawing his conclusions. Yet let us remember that, after all, it must be by honestly made and scientifically recorded and interpreted observations of the practitioner in the health resort, combined with the detailed watching and after-study of the case by the home doctor, that this question shall finally be settled, and it is most desirable that these men should get together and study the matter impartially. If we look for the causes of the tendency to doubt the value of climate, they are to be found; *first*, in the unskilful use in the past of climate as a therapeutic measure; *secondly*, in the formerly widely spread belief in a mysterious specific influence of climate which led to a superstitious faith in its unaided powers and therefore to a neglect of those even more important matters, hygiene, diet, instruction and detailed supervision; *third*, in the effect on

¹ See Medical Record, July 22, 1905.

¹ Before the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 18, 1905.

the general profession of their recent and all too limited experience with outdoor treatment at home, which has caused them to go from the extreme of an undue hopelessness in the past to that of an equally unwise hopefulness that any case can be cured in any atmosphere by sleeping out on a porch and eating heartily and freely.

As to the first cause, cases after a diagnosis have too often been sent to a resort to care for themselves with no better instructions than to live outdoors and to take plenty of exercise and food, the doctor forgetting that he would censure any man who would use any of the usual therapeutic measures so carelessly; or, again, the doctor in the resort to whom the patient has been entrusted, has also believed too much in climate and has only too often failed to remember that instruction and supervision are essential elements in a cure, so that he has not always given the case that teaching and control which he should have known were necessary. Such neglect on the part of those supposed to be especially expert is inexcusable, and with an advancing realization by the doctor of his responsibility, should be a rarer and rarer occurrence. Thus, either left to guide their own cases in their ignorance, or insufficiently instructed and taught, too many patients have returned home, their trouble, it is true, arrested, but themselves uninstructed and unfamiliar with the management of their future lives, which is the chief thing on which they must rely thereafter to prevent relapses.

As to the second reason, the belief in the specific effect of climate has been responsible for the sending to resorts of many hopeless cases in which any permanent results could not possibly be expected, and the occasional surprising arrests of a few such cases have only tended to keep up a practice whose generally unfavorable outcome can but throw doubt on the whole method.

As to the third reason, it is well known that when our profession takes up any new method of treatment we are apt at first to be carried away by our enthusiasm, and the open air home treatment of tuberculosis is no exception. While the excellent chances it offers to those who cannot hope to get better conditions should always be dwelt upon, we should also not forget that the addition of climate to the effects of the open-air cure is too valuable to be neglected where it is feasible.

We have too long regarded tuberculosis as an all but hopeless disease, too long trusted to climate without care as a panacea of mysterious powers; so that when, as a result of a dissemination of information on the proper handling of such cases, an improvement in the results of home treatment is inaugurated, we tend to run to the other extreme and to doubt our former deductions from years of careful clinical observation. Let it in passing be remembered

to the honor of climato-therapy that from the workers in this line (and especially from the honored president of this Society) have largely emanated the popularization of the hygienic and dietetic cure which is now so widely accepted and which is doing so much good. It is largely those patients sent back from resorts where they have been faithfully and carefully trained who have carried among the laity the gospel of fresh air and hope, who have showed how much could be accomplished even in their own homes and that even in our smoky cities outdoor life was possible and desirable, that night air is harmless, that open windows do not give pneumonia, and that hygiene and common sense can save many who could not get the purer and more vitalizing air of our resorts.

A great difficulty that meets us in the study of the subject comes from the fact that our opinions have been built on the clinical experience of the men working in this line and therefore are necessarily only the summation of innumerable personal impressions. Meteorology and climatology, much as they can help us, are not as yet, however, able to account entirely for the wonderful results which clinical experience has noted, just as the most skillful analysis of the waters of a mineral spring and the synthetic construction therefrom of an apparently identical mixture fails to produce the results gotten by Nature's mixture.

Necessarily experience and results must be relied on to give the final word, and while that experience and those results are such as to allow the honest worker who has had them, no doubt as to the power of climate, yet he must realize that the profession may doubt his impartiality.

Both in hopeless and in hopeful cases, however, the clinical evidence is too conclusive to admit doubt of the power of these more or less unclassifiable influences. In advanced cases the great amelioration or cessation of many of the most painful symptoms and the general improvement of the patient's comfort and strength, combined with the marked effect on mixed infections, cannot be doubted. They far surpass the very best results obtainable in similar advanced cases in our cities on porches or roof gardens, and the rapid relapses which in such advanced cases follow their return to ordinary climates are only another testimony in the same direction. Often, indeed, cases which on arrival appear to be utterly hopeless, patients who are brought on stretchers in the most desperate condition and whose course in their homes had been steadily downward, will, against one's best anticipations, rally and regain a very fair state of health, which often can be continued for years provided they do not return to less favorable regions, and which, it has only too often been proved, is dependent on such a residence, for when tempted by an apparent complete arrest, they return home, the cured mixed infection soon lights up again and the rapid return of their trouble shows

what the climate has been doing for them all the time.

In cases of slight or medium severity the percentage of arrest of trouble, as attested by many of our profession in their own persons and noted in many patients, is fully as satisfactory as are the results of any of the therapeutic measures, whether physical or pharmaceutical, recognized as powerful in other diseases, and no more open to reasonable doubt.

When we come to study the influences at work in the matter, let it be stated clearly that a specific influence of climate in tuberculosis such as that of mercury in syphilis or of quinine in malaria is no longer admitted, although the therapeutic influence of climate in this disease cannot be doubted and is as certain as are the effects of any of our standard drugs or other measures.

Realizing, then, as we now do, that the very first aim in the treatment of tuberculosis is and must always remain the raising of the vitality of the patient's system until it is able itself to conquer its disease, we see that the beneficial effect of climate depends upon its wonderful power in vitalizing the system, on its beneficial effects on metabolism, on its awakening of dormant or waning natural powers. It is to this that we must look to explain its chief effects, and if it could be doubted for a moment that climate has such powers, then it might well indeed be questioned if there were any value in it. But that these are exactly the effects which it has, has been too satisfactorily proven by much careful scientific work to be questioned, and anyone who has made a visit to any of our resorts, whether low or high, cannot have failed to note such effects in his own person. Its stimulating effect on all the vital processes, the deepening of respiration with the consequent improvement of gas interchange, the awakening of appetite, such as can be gotten by no drug, the improvement of the mental attitude, all these are plainly in evidence. If this be so, and if it be also true that the whole aim of the hygienic and dietetic treatment is to produce such results, then nowhere can this treatment be expected to be so effectual as where it is aided by climate.

No advanced workers in this line would today, as was formerly done, place climate first in the order of therapeutic measures. Let it never be forgotten that hygiene, diet, teaching and supervision must *always* come first, but granted that they are properly attended to, then enters the powerful rôle of climate, reinforcing and accentuating the effects of these other measures, and yielding results that cannot be approached even with the same care and watching and food in less favorable localities.

Climate has been defined by Parke Weber as "a combination of various conditions of the atmosphere and earth's surface determining the suitability of a region or a site for the life and health of animals and plants," and climatology as "the utilization of climate to promote

the comfort and recovery of the sick or to prevent the development of disease."

W. L. Dunn has also said that "a climatic resort is a place where there is a maximum of sunshine, a minimum of fog and mist, relatively few hours of rainfall, a relatively low humidity, great purity of the atmosphere and an opportunity for efficient medical supervision." Altitude is not referred to here, despite its great value, as not being a factor in all climates beneficial in tuberculosis.

To discuss here the various forms of climate is not within our province, but it should rather be our effort to point out what in general are the elements which in climate have a beneficial influence. These can be classified in the order of their importance as: (1) Abundance and bacteriological and chemical purity of the air; (2) sunshine; (3) coolness, or, in a certain number of cases, warmth; (4) dryness, or in a few cases, a moderate degree of humidity; (5) altitude; (6) wind; (7) equability; (8) soil.

The bacterial and chemical condition of the air has been carefully studied and has been found to vary from a very high pollution in the streets of our large cities to an almost absolute purity in high mountains, open seas, deserts and arctic regions. A very slight degree of pollution is found in country and mountain climates, especially when sparsely settled.

Recalling the powerful rôle of streptococcal and other mixed infections in pulmonary tuberculosis and their power of changing a simple tuberculosis with chronic advance into a destructive consumption, noting also the bad effects of dusty atmospheres in producing bronchial catarrh, and especially the rapid lessening of mixed infections and such catarrhs in the purer air of our climatic resorts, the importance of this factor does not need to be further dwelt on. We would only note here that we believe that the relapses of some cases when they return to city life are due to the reinfection of the diseased lung by pus organisms and to its irritation by dust.

After pure air we would place sunshine and sunheat, whose effects are both direct and indirect. Although its direct effects are evidently beneficial, they have never been completely analyzed and therefore will not be dwelt on here. The indirect effects of sunshine as seen in its powerful stimulation of the patients' spirits are of great importance.

Dryness in most cases is a most important factor through its valuable anti-catarrhal effects, but when extreme this influence may be reversed, and there are not a few cases in which a moderate degree of humidity is more beneficial.

Generally, low relative humidity with moderately low temperatures has a tonic effect and is beneficial in irritated conditions of the respiratory mucous membrane, while such low humidity with very low temperatures, while stimulating, is apt to irritate the mucous membranes. Low relative humidity with high temperature is

generally debilitating. High relative humidity and moderate temperature is soothing to the irritated mucous membranes, but high humidity combined with low temperature favors catarrh. On the whole in pulmonary tuberculosis low relative humidity with moderately low, or low, temperatures is most generally suitable, and the average tuberculous patient always makes his best gains in cold, dry weather, where such conditions prevail. There are certain cases, however, which do better with a high relative humidity and warm temperature.

Equability where older people or the very feeble are concerned can be of great value, but is not as important as used to be supposed. In stronger patients variations in temperature stimulate the vital activities, hence, generally speaking, equability is not an important factor.

Wind, when the patient is directly subjected to it, is harmful, but when he is properly protected its purifying influence on the air, provided vegetation is sufficient to prevent dust storms, is beneficial.

Most authorities are agreed that, other things being equal, some degree of altitude owing to the great purity of the air and to its stimulating effect on the metabolism and appetite, etc., is most desirable, but it is not here our function to discuss the large question that this opens up. Enough to say that care should be used to choose an altitude suited to the patient's degree of vitality and heart power.

But a study of these local conditions and their adaptability to any given case is not enough. The temperament of the patient should be studied, as well as his docility and intelligence, for these play an important part in getting the best results from a climatic cure. In a few, homesickness can be so severe and unyielding as to make a departure from home impossible. Others are so intractable and so unwilling to obey any instructions that they are apt to injure themselves by imprudences.

Above all, the financial condition of the patient is a determining factor, for, as one of your committee has elsewhere written, "If, however, one has to choose between treating patients in narrow circumstances in their own homes or sending them to a resort where their poverty will not enable them to get the necessary conditions of quarters, diet and care, which are so essential, by all means let them stay at home. By changing their houses, by moving to the top floor, using the roof as an outdoor sun parlor, and spending the utmost possible part of their time there, by economizing in every other way in order to be able to spend more freely for good food and cookery, much can be done, provided always that their lives can be properly supervised. When pecuniary reasons prevent the patient from seeking a special climate, excellent results can thus be had, though with greater difficulty, in the patient's home, if the case is not too advanced and that home not too miserable."

For the submerged tenth climato-therapy, save as supplied by the municipality or State, or by philanthropic effort, is an impossibility, and even the getting of proper conditions in their own home is for them a Utopian idea. That municipal or State sanatoria have been opened for this class near our cities, but in localities whose purer air and favorable conditions mark them as climatic resorts, gives hope in this direction, but the only permanent results among the poor will come from a prophylaxis based on teaching them decent modes of life, on improvement of bad sanitary conditions and on a change in the impossible hygiene of their lives. For those in modest or narrow circumstances climato-therapy is only desirable when they will be able to get at the resort equal or better conditions than they could have at home. For those who are comfortably off, or for the well-to-do, it seems to your Committee that there cannot be a moment's doubt that any results that they could obtain at home by the most careful treatment, even if their home doctors are absolutely familiar with the kind of detailed and personal work which these cases require, can be infinitely improved and the percentage of cures or of arrested cases greatly increased by the carrying out of similar treatment under the favorable influences of climate.

We would here also say that with rare exceptions the patient who leaves the resort, however well he may be and however great the improvement in his physical findings, should not be told that he is cured, but only that the process is arrested, and that if, when he returns home, he, by faithful living, can show for two years a continuance of such conditions, then he may justifiably consider himself cured.

A misunderstanding of this fact is largely responsible for the popular condemnation of climatic cure. A climatic resort should be looked upon as a university where the patient goes to get under proper conditions that discipline and instruction which he will bring back with him into his daily life at home, where he should serve as a teacher of those with whom he is thrown, and the doctor in a climatic resort will be of use to his patient in proportion as he is able to be a forceful and stimulating teacher.

A CASE OF SPINAL APOPLEXY WITH FINDINGS.

BY WILLIAM BROWNING, M.D.,

AND

FREDERICK TILNEY, M.D.,

OF BROOKLYN, N. Y.

MR. C., sixty years old, seen first July 12, 1904, with Dr. E. Frei. The patient is a vigorous man, looking younger than his years. Weight 165 pounds. Not a user of alcohol. Moderate smoker. Born in Germany. Last year for four months he had a kind of lumbago and pain in the right side on stooping over, for which he consulted a physician. It did not yield well to treatment, but finally went away entirely.

Last February or March he also had a "touch of lumbago or sciatica that did not amount to much." Has a healthy family (wife and four children).

On July 8 (*i.e.*, four days before I saw him) he had a hammer in his hand for some nailing at the rear of the house. He fell down two stone steps. He does not know how it occurred, but thinks some paralytic thing happened to him and that hence he fell. When asked if he had not slipped and in falling brought on the condition, he was inclined to agree with the suggestion as perhaps the more probable. At any rate the right leg went forward, the left hung back on the step, coming under him, and the spine was twisted. He immediately experienced a numb or sleepy feeling in his lower extremities. "I got up from the floor myself, . . . braced myself against the wall and called for help." However, he could not walk, was unable to take another step, and had to be carried in.

The doctor saw him in an hour. He still could voluntarily move the lower extremities, the right the better. It seemed as though his movements were then limited by pain. Has had to be catheterized since the occurrence. There has been no fever. Urine normal.

He complains now greatly of pain in both sides (Weichen), and on turning there is also some on the inside of left knee. But the pain is now much less. Catheterization or evacuation he hardly feels at all, though knows when gas passes.

Examination showed sensation partly preserved over the whole of both lower extremities. He recognizes an impairment, however (all forms, particularly touch), up to about half-way between pubes and umbilicus and correspondingly around to the back. A place on the inner side of left knee is very tender to pressure, although normal in appearance. Tapping either sole upward causes pain. Some tenderness over the lumbosacral region. Pain also on deep pressure in front toward the promontory. On touching either sole, "it feels like a thousand pins and needles." Temperature (rectal) 98.1° F. Pulse 86 and good. Pupils normal. No cardiac murmur.

No knee-jerk on the left, and none even on reinforcement on the right; but on tapping the right patella downward there seemed to be a little reaction in the muscles above. No ankle clonus on either side. No plantar nor Babinski, except that occasionally on the left there is a slight normal plantar movement of the big toe. No distinct abdominal nor epigastric reflex. Slight cremaster on the right; none on left.

No voluntary motion in either lower extremity. The least movement or jar is painful, and turning in bed is impossible without much aid and intense suffering.

July 16.—Sharp pain down the insides of both thighs, though none along the sciatics. This let up in about a quarter of an hour, and was fol-

lowed by a fifteen-minute chill. Temperature 100° F. The chill thought to have been urethral. Evacuation of bowels is now involuntary.

To gross tests he was anesthetic to the groins, although feeling heavy prods in the thighs. Sensation normal above the umbilical girdle, but varying imperfect from there to the groins. Claims to be slightly conscious of urination.

Spinal puncture between second and third lumbar, gave scant three drams of perfectly clear, colorless fluid. This, however, soon showed a coagulum. It was examined by Dr. Stähler, who reported as follows: "1. Reaction, faintly alkaline; 2. Mucin, none; 3. Globulin, present, about normal (1 to 1,000); 4. Nucleo-proteid, none; 5. Proteoses, both primary and secondary, in larger amount than globulin; 6. Serum albumin, two to three times the amount of globulin; 7. Peptones, none; 8. Phosphates, none; 9. Chlorides, present; 10. Cholesterin, none; 11. Fibrinogen, none."

"The sediment, or rather, gelatinous matter in the bottom I do not understand. It is not fibrin—not cellular in structure; microscopically and physically like mucin, chemically . . . the quantity was too small to do anything with." Stained for diplococcus, but nothing found.

According to Dr. Bartley, whose opinion I asked, the findings in this fluid indicated either adjacent hemorrhage or inflammation, consequently indecisive on the main point in question.

July 20, at hospital. No plantar reflex, ankle clonus or knee-jerk on either side. Cremaster now present on each side, stronger on the right. Can locate coarse touch on either sole and on front of either leg. No action of either psoas muscle, and still complete motor paralysis of both lower extremities. The great pain on even passive motion of either lower extremity persists. The least turning of the trunk caused intense pain, which he located in a general way at the groins. Bladder and rectum still acting involuntarily.

Urine—Sp. gr. 1.029—amber alkaline; large trace of albumin, erythrocytes; few epithelial cells; crystals of leucin, tyrosin, sodium and ammonium urates; phosphates.

Owing to his suffering his family finally decided on an operation; and the symptoms, according to general views, gave hope that perhaps the pressure of some hemorrhagic process about the meninges might be relieved thereby.

Operation.—Laminectomy was performed by Dr. Warbasse at the German Hospital, on July 20, twelve days after the onset; and it is to him that I am indebted for the following details:

Incision in median line over spinous processes of eighth, ninth, and tenth dorsal vertebræ. Laminae of eighth and ninth divided and together with the spinous processes lifted out. No hemorrhage or cause of irritation discovered. Upon pressing aside the cord with its membranes by means of a spatula a slight oozing of bloody serum came up from below. The laminae of the

tenth and eleventh dorsal vertebræ were then divided and removed. Again a small amount of thin blood or bloody serum oozed out from in front of the cord-membranes when pressed aside. There was no clot present nor evidence of old hemorrhage. The total amount of effusion (wholly or largely blood) was estimated by Dr. Warbasse at two drams or more. It had been in front of the cord, outside the dura. This latter appeared normal. There was no bulging of the membranes or evidence of increased subdural pressure. The membranes of the cord were not opened.

"Muscle sewed together over opening in spinal canal with chromic-gut sutures. Small iodoform gauze drain. Layer suture. Skin closed with subcuticular suture of linen."

FROM CHART AT THE HOSPITAL.

		Pulse.	Respiration	Temperature
July 19, 1904....	9.15 A.M.	104	20	99.8
	12 noon	92	24	99.6
	4 P.M.	100	24	100.0
	8 P.M.	96	24	99.8
July 20.....	8 A.M.	104	22	99.4
	12 noon	104	24	
OPERATION.				
	P.M.	...	40	
	8 P.M.	160	28	103.4
	12 M.	156	32	104.0
July 21.....	4 A.M.	164	48	104.8

When returned to the ward his wrist pulse was scarcely perceptible, but he responded to stimulants. At 8 P.M. pulse 160 but improving, and he was free from pain. At midnight his mind was clear, he looked better, and expressed himself as gratified at being free from pain. He failed rapidly toward morning, and died at 7 A.M.

A portion of the dorsolumbar cord was secured; but no abnormal appearances could be discovered at its removal. The histological examination and report are by Dr. Tilney.

Putting it all together, it appears that there were changes outside the dura (hemorrhagic extravasation¹), also in the cerebrospinal fluid (as shown by spinal puncture), and evidence of both primary and secondary alterations in the adjacent cord. The change in the fluid² can be considered as secondary, and whatever the character of the epidural blood or effusion found at the operation, it can hardly have been sufficient to cause the symptoms. Though we may look to the cord as the main seat of the trouble, the

whole process must be termed a hemorrhagic meningomyelitis. The lack of fever in the early days speaks for traumatism as a cause.

Pathological Report.—Portion of adult spinal cord with enclosing membranes intact. Length 9 cm. Configuration of cephalic end indicating level of eleventh dorsal segment, that of caudal, third lumbar segment, *i.e.*, dorsal segment XI to lumbar segment III inclusive.

The Membranes.—Dura mater somewhat thickened; epidural plexus much enlarged; ligamentum denticulatum absent on both sides; shreds of its remains could be floated out from pia. Pia mater somewhat thickened; Easily separating from cord; macroscopically shows a diffuse interlamellar hemorrhage (Stain v. Gieson).

The Cord.—Macroscopically, cross segmentation near the upper levels of the twelfth dorsal segment showed a small, darkly pigmented area in each anterior horn slightly forward of the center. Segmentation through the first, second,

TRANSVERSE SECTION OF SPINAL CORD AT LEVEL OF THIRD LUMBAR SEGMENT.



A. Anterior horn. B. Posterior horn. C. C. C. C. Degeneration area. D. Central canal. E. Anterior long fissure. F. Posterior median septum. G. Hemorrhagic infiltration.

¹ Though epidural hemorrhage in such a case is at least unusual, it can hardly be attributed to the spinal puncture. The change in the subarachnoidal fluid proves previous meningeal involvement, and is also unusual. And the puncture was too far below, especially as no outside hemorrhage was found there when the portion of cord was removed a few hours later.

² In Schiff's case (V, Case 18, of Table, p. 692, MEDICAL NEWS, of Oct. 7, 1905) "Lumbar puncture five hours ante mortem brought about 20 c.c. of clear fluid under a very considerable pressure. It showed the characteristics of a non-inflammatory cerebrospinal fluid (no coagulum). Micro-organisms were not demonstrable either microscopically or culturally."

and third lumbar segments showed an area of like pigmentation, but of greater extension, occupying relatively the same topographical position as the area noted in the twelfth dorsal segment. In addition, a smaller, well defined area of pigmentation in the base of either posterior horn, on the mesial side (about Clarke's column). Also a few punctiform areas of dark pigmentation scattered in the posterior horns. Microscopically, the white substance shows irregular areas of marked disintegration in the dorsal columns on either side, but not symmetrical, involving mostly the dorsolateral divisions of Goll and Burdach, and the fasciculus of the posterior septum. Other circumscribed areas of disinte-

gration are found on both sides in the crossed pyramidal tract, the direct cerebellar tract and Gower's tract. Disintegration of lesser degree is found in the tracts already mentioned also in the fasciculus sulci marginalis anterioris (of Marie) and the intermediary bundle (of Löwenthal). On higher magnification many of the axis cylinders in these areas as well as their myelin sheaths, appear to be much swollen. Still others have altogether disappeared, leaving in their place spacious lacunæ. The vessels in the white substance, though extremely injected, present no change other than a widening of their perivascular lymph spaces, in some of which latter are found a few red blood cells. In the lower lumbar sections, external to the posterior horn, appears a well-defined hemorrhagic area. These observations are true of the last levels of the second lumbar and all the levels of the third lumbar segment. A marked change occurs in

TRANSVERSE SECTION OF CORD AT LEVEL OF TWELFTH DORSAL SEGMENT.



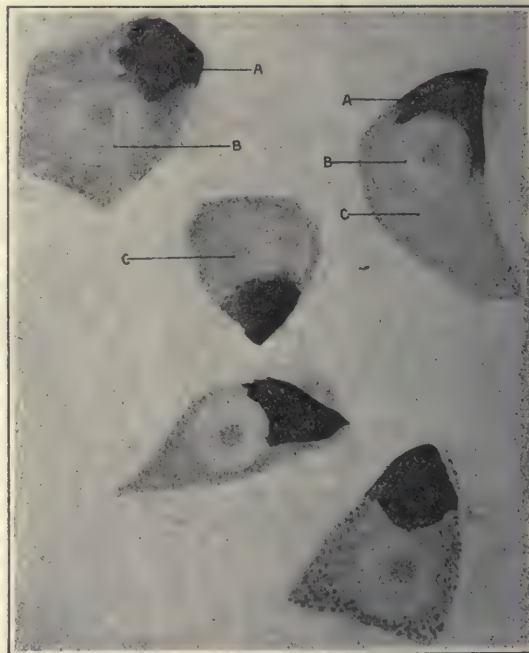
A. Degeneration area. B. Posterior horns. C. Anterior horns. D. Hemorrhagic infiltration. (Preparation according to Pal, combined with eosin.)

the disposition of the disintegrated areas in the eleventh and twelfth dorsal segments. Here the advanced disintegration is confined to a more limited space and appears in the dorsal column of one side only. It is a narrow zone lying in the column of Burdach, extending from the neck of the posterior horn to the periphery and separated from the horn by a narrow zone of comparatively intact axons. Other diffuse areas of disintegration are found in several other positions. The gray substance, at the lower lumbar levels, presents in either anterior horn an extensive area of citron pigmentation (Schmaus) which, upon higher magnification, is seen to contain a number of red blood cells. This area embraces all the anterior horn cell groups. In the dorsal segments it is less extensive. The same condition is present in and about Clarke's col-

umn. Small hemorrhagic collections are seen scattered throughout the posterior horn, more especially in the prerolandic area. Some cells in the antero- and posterolateral groups of the anterior horns, also in Clarke's column, present the following changes: (1) Central chromatolysis; (2) swollen and eccentric nuclei, and (3) large deposit of a yellow pigment occupying one of the polar extremities. Other cells in these regions show the yellow pigmentation without the chromatolytic change.

These departures from the normal cellular morphology should not be accepted as pathological until the improbability of post-mortem artefact has been reasonably established. The fact that the highly resistant cells of the anterior horn and Clarke's column should show such marked change while the less resistant cells of the commissure of the para- and prerolandic areas present little deviation from the normal, may be taken as at least presumptive evidence of a pathological condition in the cells of higher resistance. Upon the chronology of the lesion

MOTOR CELLS FROM ANTERIOR HORN.



A. Intracellular yellow pigment. B. Swollen eccentric nucleus. C. Central chromatolysis. (Preparation according to Nissl.)

the central chromatolysis has a distinct bearing. For, accepting van Gehuchten's contention, that a peripheral chromatolysis indicates a slow degeneration, whereas a central chromatolysis points to a sudden and virile assault upon the cell, the case in question illustrates the latter type in which the assault has been sudden, the destruction comparatively rapid. The yellow pigment undoubtedly is part of the degenerative process going on in the cells.

the vessels in the gray matter are intensely dilated, the spaces appearing as aneurismoid dilatations. The canal at all levels is obliterated, its space being occupied by a dense mass of filamentous neuroglia. In some places, especially the center of degeneration, the filamentous neuroglia has assumed the embryonal type; the cells have become migratory, are somewhat swollen and show a decided reactionary increase in number. Taken into consideration, therefore, the circumscribed and longitudinal extent of the infiltrated gray area, the free corpuscular elements in the same, together with the specified degen-

eration of the gray matter and of the vessels, is justification for the term *lobularis cerebri* (Lieber). To this term, however, the central hemorrhage is incidental, although *in toto* corresponds in most instances to a true myelitis; it must be borne in mind that the essential causes producing all the changes in myelitis and the secondary changes in central hemorrhage are identical, and produce disturbances of nutrition.

The points of diagnostic value in the case are: (1) The central hemorrhage, as has been described and illustrated, consisting of a white substance characterized by swollen axons, axons with swollen sheaths, also a large increase caused by the total disappearance of myelin, with their sheaths (Lindenberg and the German authors); (2) Chromatolysis in the periphery of many cells; (3) Infiltration of gray matter of the blood vessels; (4) Purposive of myelin in size and number.

All of these changes, except the last mentioned, namely, the presence of white areas, would appear in a true central myelitis (on the very rare form, myelitis centralis hyperactissima), but the presence of the central hemorrhage determines the nature of the central myelitis. The history of the present moment only in so far that a central hemorrhage confirmed by minor and more extensive

tem, nor any reference to a causal relation between cirrhosis of the liver and chylous ascites.

Clinical History.—J. D. L., white, male, age at death, seventy-four years. Concerning the patient's family history and early personal history no facts of importance could be learned from the patient or relatives. The patient had been a clerk in one of the Departments, was married and had children. He used whisky freely until about twenty years before admission, when, on account of some domestic trouble, he took to drinking quite heavily and kept it up until admission. He was admitted in 1895, with the diagnosis of de-

ment of the liver. He was weak, thin, and had a general wasting of the body. The liver was enlarged and the spleen was also enlarged. The patient had a history of chronic alcoholism and had been drinking whisky for many years. He had no other symptoms of liver disease at the time of admission. The patient died in 1896, and the autopsy was performed in 1897. The liver was found to be cirrhotic and the spleen was also enlarged. The diagnosis of cirrhosis of the liver was confirmed by the autopsy findings.

Weight 165 pounds; his height was 5 feet 10 inches. A network of enlarged veins, the blood flowed from below upward, the abdomen and lower chest, except for a space about the umbilicus. Posteriorly at the lungs gave impaired resonance, breath-sounds and a few liquid rales. The heart was slightly enlarged to the left, and systolic murmur was heard at the apex transmitted to the axilla; the second sound was accentuated. The blood-pressure 165; the radial were torridous and Hemoglobin was 65 per cent.; red corpuscles 4,250,000; white corpuscles, 3,800. The liver dulness in the nipple line extended to the fourth to the seventh ribs. Some gas present in the flanks. Twenty-six urines were passed in twenty-four hours, specific gravity of 1.025, a trace of albumin casts. The legs were tense and the scrotum was puffed up after

reduction of a right complete inguinal hernia. Well-marked external hemorrhoids were present; the stools were large and well-formed, of a putty color and contained no ova or blood.

Linear incisions were made in the legs, and the patient was put on infusion of digitalis and saline purgatives, but this treatment gave no relief. The legs became more tense, the abdomen more distended, with marked dulness in the flanks, fluctuation and dyspnea. On March 28 the patient was tapped in the median line, and 5,700 c.c. of fluid were withdrawn. A large quantity was also drained off through the puncture during the next day or two. The abdomen became lax, the edema disappeared, and the patient felt much easier. By April 6 the fluid had reaccumulated, with the same symptoms, and 6,200 c.c. were removed; no leakage occurred. On April 16, 7,800 c.c. were obtained. The total amount of fluid, including 2,800 c.c. obtained at the autopsy, was 22½ liters.

Each time the fluid presented the same striking appearance. It was milky white, with a tinge of pink, which became more pronounced on each tapping. On standing, the pink color disappeared, and a film of red appeared at the bottom of the receptacle. The specific gravity of the first specimen was 1.010, of the second 1.012, of the third 1.013. A qualitative analysis of each specimen gave the same results; a quantitative analysis of the last specimen was as follows:

Specific gravity.....	1.013
Reaction.....	Slightly alkaline
Sugar (fermentation method)....	0.1 per cent.
Fat (ether extract).....	1.3 per cent.
Albumin (albuminometer).....	1.0 per cent.
Urea	0.1 per cent.

Microscopical examination showed no large fat-globules, but a great number of fine granules in constant motion; the cellular elements were as follows:

Erythrocytes	24,000 per mm.
Leucocytes	1,800 per mm.
Small lymphocytes.....	66.5 per cent.
Large lymphocytes and transitional cells.....	13.5 per cent.
Polymorphonuclear leucocytes....	20.0 per cent.

A differential count of the leucocytes of the blood at this time showed:

Polymorphonuclears	76.5 per cent.
Small mononuclears.....	11.0 per cent.
Large mononuclears and transitional	10.5 per cent.
Eosinophiles	1.5 per cent.
Basophiles	0.5 per cent.

The fluid did not become clear on extracting with ether, no superficial layer developed on standing, and no decomposition occurred for several days, although eventually this took place and a slight coagulation appeared, unless a preservative was added. No distinctive odor could be detected.

Several observations on the blood-pressure were made with Cook's modification of the Riva-Rocci apparatus and a 10 cm. cuff.

TAPPINGS.	BEFORE TAPPING.		AFTER TAPPING.		AFTER BINDER.		AFTER TWENTY-FOUR HOURS.	
	B. P.	P.	B. P.	P.	B. P.	P.	B. P.	P.
First. March 28. .	165	88	140	92	150	100	130	102
Second. April 6	135	72	125	76	130	76	.	.
Third. April 18. .	115	62	100	88	145	86	110	72

These readings, except in the last instance, showed the usual fall in blood-pressure and rise in pulse-rate when the intra-abdominal pressure was relieved by tapping. A corresponding rise occurred when the abdominal pressure was partially restored by the use of a binder. The secondary fall was probably due partly to a restoration of normal conditions and partly to a progressive failure of the circulatory apparatus. The pressure was 105 a few hours before death.

The temperature at first oscillated irregularly about the normal line, ranging from 97° to 99° F., and then became continuously subnormal, 96° to 98° F. No rise followed an injection of three milligrams of tuberculin. The patient lost about twenty pounds during the five weeks of illness. During the last two weeks it was noticed more distinctly that the patient while lying quietly in bed would cry out as if in great pain, and examination showed that at these times the left thigh became spastic, and that, when relaxed, it was an inch smaller in circumference than the right. No patellar reflex could be elicited on either side, but the light reflex was present in both eyes.

The incisions in the legs had become slightly gangrenous, and in the last few days the patient became comatose, developed a rapid and weak pulse, numerous liquid râles and rapid respiration, and died on April 26.

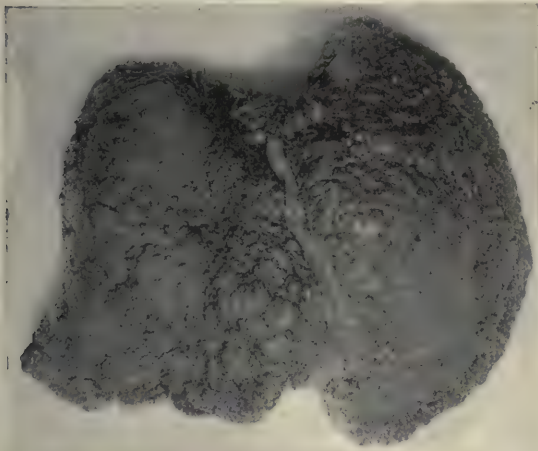
The mental condition apparently had no bearing on the aspect of the case in question. The patient was for the most part a tidy, humorous old gentleman, unmindful of time, forgetful of recent events, and anxious to get back to his family and the Department. At times he was querulous, and vowed he would reveal the rotten state of things at the hospital.

The analysis of the fluid clearly established the case as one of chylous ascites; but no definite diagnosis of the cause was made. Cancer and tuberculosis of the abdomen, heart disease and cirrhosis of the liver were considered among the probabilities. The diagnosis of cancer was favored by the presence of blood in the fluid, but was negatived by the absence of cachexia and of localizing symptoms. Tuberculosis seemed to be excluded by the failure of the tuberculin test. Heart disease, while present, seemed hardly sufficient to account for the large amount of fluid. Cirrhosis of the liver seemed probable, on account

of the history and symptoms; but no reason was apparent for the presence of chyle in the ascitic fluid. The high percentage of lymphocytes in the fluid might have suggested that the lesion was connected with the thoracic duct rather than with the lacteals; but this was not thought of until after the autopsy.

Post-Mortem Examination.—With some difficulty permission was obtained to examine the body, and twenty hours after death the patient came to autopsy in the service of Dr. I. W. Blackburn. A considerable quantity of stomach contents had during this time discharged through the mouth. The abdomen was still considerably distended. By tapping and, after incision, by sponging, about 2,800 c.c. of the same reddish-white colored fluid was collected. On opening the abdomen the first object met was a typical hob-nail liver (Fig. 1). This organ weighed

Fig. 1.



Atrophic cirrhosis of the liver. Superior surface.

1,400 grams. The right lobe was more contracted and distorted than the left. The surface was very irregular and studded with innumerable large and small nodules. On section, bands of connective-tissue could easily be seen surrounding the remains of pale liver tissue. Under the microscope the usual picture of atrophic cirrhosis was presented. There were islands of fatty liver tissue surrounded by dense bands of connective tissue containing many so-called newly formed bile ducts. In some cases the margins of the lobules were included in the connective-tissue bands. The presence of at least a part of the ascitic fluid was therefore explained.

Before looking for the cause of the presence of chyle several organs were removed. The heart, weighing 460 grams, showed thickening and insufficiency of the mitral valves. The lungs were edematous and partly collapsed at their bases and posteriorly; the right lung weighed 850 grams, and the left lung 660. The capsule of the spleen

was thick and nodular; the substance, fibrous; the weight, 350 grams. The stomach was simply distended and dilated, and was ligatured and removed. The small intestines likewise threw no light on the problem, and they were removed in toto with the mesentery. There were a few adhesions between several of the loops, and a few irregular opaque patches in the peritoneum; elsewhere the peritoneum was slightly thickened. The lacteals were visible, but not noticeably enlarged. The veins, except those to be mentioned later, were not markedly dilated or engorged. The mesenteric fat was marked. The lymph glands, except those to be mentioned later, were

Fig. 2.



Thrombosis of the receptaculum chyli and its tributary lymph vessels; all but two of the lymph glands have been removed.

light brown and not enlarged; microscopically they showed no pathological change. The colon was also removed to clear the field. No varices were found in the entire canal.

A promising-looking mass was now more clearly seen lying on the top and left side of the bodies of the lumbar vertebræ, and extending from the brim of the pelvis to about a level of the pancreas. This proved to be a large fatty capsule of a displaced left kidney. The fat was firm and fibrous and weighed 810 grams. The kidney, which lay in the center, weighed 120 grams. The right kidney lay in the usual position, and was also surrounded by a large fatty

fibrinogen, which will form a clot as soon as the fibrin-ferment is furnished by the blood. The fibrin-ferment, according to most physiologists, is given off by white corpuscles. These were present in the fluid in considerable numbers, and in their passage from the blood-vessels to the lymph vessels were probably so altered that they started the process of clotting.

The appearance of the lymph glands suggested the possibility that they were hemolymph glands; but nothing in their distribution or structure tended to establish such an opinion.

While so much of the case may be considered as fairly well settled, several uncertainties remain. For instance, what part did the displaced left kidney play in the production of the thrombus? Although it was apparently simply a coincidence, it partly overlapped the glands and receptaculum, and may have been a factor by

was found to have an obstruction of unknown nature in the lymph vessels and lymph glands. Busey in 1889 made the first collection of cases of milky ascites, and found 53 cases, 28 of which were chylous; 39 had been reported in that century, and 27 in the last two decades. Bargebuhl in 1893 collected 75 cases, 48 of which were chylous, and in 1895 added nine more cases. Rotmann in 1897 collected 18 more cases and added two of his own, which made a total of 104 cases, 63 of which were chylous, 21 chyliform and four undetermined. Shaw in 1901 collected 11 additional cases and added one, making 116 cases of milky ascites, 73 of which were chylous, 33 chyliform and 11 doubtful. Verdelli, 1894, and Comey, 1903, made less complete tables. The latest collection is that of Boston in February, 1905, who collected 126 cases and added two. No one of these lists is probably final for its

Cases of Milky Ascites Associated with Cirrhosis of the Liver.

No.	Author.	Date.	Reference.	Age.	Sex.	Pathogenesis.	Nature of Fluid.	Termination.	Autopsy.
1	Weaver.	1814	Med., Surg. and Pharm. Reps. II, p 377.		M	Probably liver disease.	Chylous.	Death.	o
2	Méhu.	1878	Traité Pratique 1878, p. 215.		M.	Cirrhosis of liver	?	?	
3	Veil.	1882	Paris Thésé No. 21, p. 215.	25	F.	Gummata of liver.	Chyliform. Tapped.	Death.	
4	Gaucher.	1881	Cited by Veil, p. 31.	47	M.	Cirrhosis of liver. Alcoholism.	Chyliform Milky at first then clear Tapped four times.	?	
5	Gaucher.	1882	Cited by Veil, p. 36.	39	M.	Cirrhosis of liver. Alcoholism.	Chyliform. Clear at first Tapped six times.	?	
6	Senator.	1885	Charité Annalen X p. 314.	46	M.	Cirrhosis of liver. Chronic Peritonitis	Chylous. Tapped three times.	Death.	o
7	Váli.	1892	Allgemeine Wiener med. Zeitung, p. 13.	Young adult.	F.	Cirrhosis of liver. Chronic Peritonitis.	Chylous. Clear at first. Tapped eleven times.	?	
8	Author.	1905		74	M	Atrophic cirrhosis of liver. Alcoholism. Thrombosis of Receptaculum Chyli.	Chylous; Tapped three times.	Death.	+

pressure. Again, was the fluid a mixture of ordinary ascitic fluid and chyle, or was it pure lymph and chyle? Foster estimates that about one-half a liter of lymph and chyle is discharged from the thoracic duct in an hour. At this rate there would be no necessity for assuming an additional transudation of serum; but the history of the case and the previous attack point toward an antecedent ordinary ascites. The chylous ascites probably dated from the beginning of the fatal attack. The spasms and the wasting of the left thigh are probably referable to irritation by the fatty mass that directly overlay the lumbar plexus of this side. No examination was made of the brain, cord or nerves.

Literature.—Poncy is credited with observing the first case of chylous ascites in 1699. His patient, a girl aged nineteen years, furnished 289 French pints of milky fluid by 22 punctures, and

time; and Boston's certainly seems to contain duplicates, as, for example, cases number 54 and 56, and 38 and 49. At any rate, aside from the rarity of the condition, these lists show such a remarkable increase in recent years that the extreme rarity may be questioned. In 190 years Busey found recorded 28 cases of chylous ascites. In the last fifteen years since Busey's article some 50 more cases of chylous ascites have been reported.

The following table contains all the recorded cases of milky ascites that have been associated with cirrhosis of the liver. As will be seen, they throw no light on the case in hand. The first one is doubtful at best, and there is no record of such a journal at the Surgeon-General's Library; but the case is frequently listed. The second case is a mere mention of a milky fluid obtained from a cirrhotic. The third, fourth and fifth cases are

not pertinent, as the fluid was chyloform and not chylous. The sixth and seventh cases bear some clinical resemblance to the case here described, but the lack of an autopsy disqualifies them. The foregoing case, then, seems to be the only sure one of its kind on record; but the possibility of a similar series of events may be not so very remote.

The writer is greatly indebted to Dr. Blackburn for advice and for the preparation of the drawings.

BIBLIOGRAPHY.

- Bargebuhr, Deut. Arch. f. klin. Med., 1893, LI, p. 161; 1895, LIV, p. 410.
 Busey, Am. Jour. of the Med. Sc., 1889, XCVIII, p. 563.
 Boston, Jour. Am. Med. Ass'n, 1905, XLIV, p. 513.
 Conney, Boston Med. and Surg. Jour., 1903, CXLVIII, p. 109.
 Foster, Text-book of Physiology, 6th Am. Ed., 1895, pp. 37 and 317.
 Gaucher, Thésé de Paris, 1882, No. 21, pp. 31 and 36.
 Méhu, Traité Pratique et élémentaire appliquée aux recherches cliniques, 1878, p. 215.
 Poncy, Saviard's Observations in Surgery, Transl. by J. S. Surgeon, 1749, p. 247.
 Rotmann, Zeitschr. f. klin. Med., 1887, XXXI, p. 416.
 Senator, Charité Annalen, 1885, X, p. 314.
 Shaw, Jour. Path. and Bact., 1901, VI, p. 339.
 Váli, Allg. Wiener med. Zeitung, 1882, Jan. 12, p. 13.
 Veil, Paris Thésé, 1882, No. 21, p. 31.
 Verdelli, Il Morgagni, 1894, XXXVI, Pt. I, p. 57.

STRICTURES OF THE URETHRA; THEIR PATHOLOGY AND TREATMENT.

BY E. G. BALLENGER, M.D.,

OF ATLANTA, GA.;

LECTURER ON GENITO-URINARY DISEASES IN THE ATLANTA SCHOOL OF MEDICINE.

THE term stricture is derived from the Latin "*stringere*"—"to bind"—and in the following discussion will be limited to those conditions of the urethra in which the lumen of the canal has become diminished in caliber by a disease process in the wall caused by gonorrheal urethritis. This includes the large majority of strictures as those from superficial infiltration and formation of connective tissue in the corpus spongiosum around the urethra from prolonged inflammation, or "breaking the cord." The spasmodic and inflammatory strictures will not be dealt with except in the cases where these conditions develop in an ordinary stricture.

Sir Henry Thompson¹ says there are no diseases that are so successfully managed, if you understand what you are about, nor any in which you may make such *dangerous mistakes*, if you are not well acquainted with the subject. The urethra is a most delicate and elaborate structure, and possesses a sensitiveness to pain that is not surpassed by any part of the body. In addition to this is another form of sensibility which is of great importance, and that is the tendency to arouse a state of excitement of the entire nervous system as shown by rigors, prostration and perhaps, subsequent fever, if the urethra is injured in any way and especially in the posterior part. The widespread nervous connection of the prostatic urethra justifies its being called the *solar plexus* of the pelvis.

The classification according to size generally adopted is: (1) *A linear stricture*, which is as if a cord had been tied around the penis. (2)

An annular stricture, which is broader, like a band surrounding the urethra. (3) *A tortuous stricture*, where perhaps 5 cm. to 7 cm. (2 to 3 in.) of the canal is involved, changing it into a devious, irregular canal. Between these may be found an infinite number of sizes.

Their characteristics, when treated, give another classification: (1) Simple strictures, that are readily dilatable. (2) Irritable strictures, that are hyperesthetic and bleed easily. Probably a better name for these would be *inflamed strictures*, as it suggests treatment to allay this inflammation which is totally disregarded by many surgeons in the management of these patients. (3) *Resilient or elastic strictures*, which are easily dilated but recontract almost immediately.

According to the degree or stage of the organization, we may have: (1) *Soft or recent strictures*, before the inflammatory exudate has undergone the process of organization; (2) *cicatricial or inodular strictures*, after the complete change to fibrous tissue. The degree of this change is important and must always be borne in mind in making a prognosis and in selecting the treatment, although it is often difficult to determine, since neither the duration nor the caliber of the stricture may be taken as a sure index of the condition.

There is another arbitrary division into strictures of *large caliber*, comprising those above 15 F., and strictures of *small caliber*, which are 15 F. and below.

Strictures are also called permeable or impermeable, depending upon whether or not an instrument can be passed; this however, has to do with the skill of the surgeon, as well as the conformity of the constriction. Urine can nearly always pass, even in very tight strictures, therefore it is not logical to call them *impermeable*.²

Location.—The consensus of opinion is that the majority of strictures are found in the bulbomembranous region; next comes the first 6 cm. (2½ in.) of the urethra. In years gone by a bitter fight raged about this point, Thompson and his followers claiming the former view was correct, while Otis and his school believed the anterior portion of the urethra was the most frequent seat. Otis claims a stricture is most likely to form where the inflammation begins the earliest and rages the hottest, but most surgeons believe it occurs most frequently where the inflammatory process persists the longest, and this is the bulbomembranous region.

As to the number, there is also a diversity of opinion, although the majority believe they are usually multiple. The possibility, however, of a stricture or a point of irritation in the anterior urethra causing a muscular spasm in the deeper urethra, which simulates a stricture, must always be remembered. This fact was advanced by Follet⁴ in 1857, and has been verified by many subsequent observations. Lydston thinks points of normal contraction or inelasticity act as pre-

disposing factors in determining the site of a stricture, on account of the increased strain and friction at these points caused by the passage of the urine.

Pathology.—The pathology seems to have been unknown to the ancients, who believed retention of the urine was caused by "caruncles," "excrescences," etc., and it was not until 1765 that Dionis⁶ showed by the post-mortem examination of the bodies of those who were supposed to have suffered from these "carcinomas," etc., that the actual trouble was a stricture. These views were not generally accepted, however, for many years. In 1793 Benjamin Bell championed the cause of those combating the theory of "excrescences," etc., and advanced ideas very similar to those prevailing to-day. Desormeaux in 1865 discovered localized inflammation with granulations, and called it granular urethritis. Gouley agreed with him, that this was the formative stage of a stricture.

These points of localized inflammation with congested and granular patches or inflamed glands are usually the starting points where the gonococci, lurking in the follicles and depressions and protected from the urinary stream and medication, cause by their inflammatory action the formation of a deposit of round-cell infiltration which is a barrier thrown up by nature to limit the inflammation. This gradually becomes organized and forms a stricture. There are, however, cases occasionally encountered where the obstruction is a "membranous septum" partially occluding the canal. The method of formation is not understood.

Rupture of the urethra in severe chordee, or when the "cord" is broken, is repaired by round cells which later form fibrous tissue and cause the worst form of gonorrheal stricture. The inflammatory exudate may be limited to the submucous and perifollicular tissue, but later may involve the corpus spongiosum, and has mixed with it the normal tissues of the urethral walls. As the infiltrate gradually changes to fibrous tissue, the normal parts are absorbed, until finally, in long-standing cases, it is changed completely into dense, firm, fibrous tissue and is then an inodular stricture.

There seem to be perhaps three methods of formation: (1) An inflammatory infiltrate is deposited beneath the mucous membrane during the acute attack and failing to clear up, or possibly forming at a point of normal narrowing from the friction and irritation of the urinary stream. Over this, upon the mucous membrane, a congested or granular patch forms. (2) The order may be reversed, and the prolonged localized inflammation cause a round-cell infiltration beneath in the submucous tissue. This begins most frequently around the mucous depressions. (3) The formation of scar tissue to repair injury done during chordee or in passing an instrument.

Lydston thinks points of normal narrowing

are most likely to be the seat of a submucous deposit, and in this way they are of pathological importance. The lumen of the canal becomes gradually occluded, so that only a small quantity of urine will pass, but it is rarely complete except in certain traumatic obstructions.

The stricture may be most irregular in shape, and although it nearly always surrounds the entire urethra, different segments show different degrees of thickness. It is usually most extensive on the floor of the canal, and the opening is frequently eccentric and varies according to the location and extent of the deposit. One-half to two-thirds the diameter of the spongy body may be altered or obliterated, and this often extends beyond the point of constriction.²

White and Martin think the glandular and lacunar lesions of a stricture are constant, and that they play an important rôle in the production of the submucous infiltration. The irregularities and nodular masses observed in the walls of the urethra often originate in the glands and the ducts. It is in treating these deep lesions that are not reached by irrigations and injections that massage of the urethra on the medicated sound is of signal benefit.

Strictures are occasionally attended with hypertrophy and induration of the penis and tumefaction of the prepuce.⁶

The canal in front of the constriction is usually more or less inflamed, and particularly the glands, which may become dilated with their secretion. The urethra may become smaller on account of its not being dilated by a full-sized stream of urine, and also because of the inflammatory process.

Posterior to the stricture an inflammation is constantly seen, and is due to the presence of a small amount of urine which is not expelled on account of the constriction and the irregular muscular action of the urethral walls. This retained urine acts as a foreign body and irritates the mucous membrane, increasing the inflammation. Nearly all works on the subject claim this urine undergoes ammoniacal decomposition, but I cannot see how this is possible, as it is retained for such a short time, being washed out at each act of micturition, which all authors agree is increased in frequency. Urine does not decompose so quickly. To determine this point positively, I made an artificial stricture with a small strip of adhesive plaster and had urine retained in the urethra 3½ hours. It apparently underwent no changes as to reaction or otherwise. Of course this is not similar to the conditions found in severe cases where the bladder is infected and the urine is already alkaline and perhaps fetid. The same changes that are taking place when it is passed will continue. These cases, however, are rare. That irritation is caused by the retained urine I do not deny, for the function of the urethra is to afford a passage for the urine, and not a cavity for its retention. Therefore I advise that the

urine be massaged, by the patient, from behind the stricture by a milking process from above downward; this should be done after each act of urination, but it is well to defer it a few minutes until the last drops of urine have been forced down from the deep urethra.

The canal back of the stricture becomes thin and pouched and its walls are prevented, by the exudate, from lying in close apposition as in the normal urethra. Most of the gleety discharge and shreds come from this point, and if the inflammation progresses, superficial or deep ulceration may take place, an abscess may form and rupture, and fistulæ result. Urine may be forced into the tissues through this rent, and if it is extensive, dangerous extravasation follows. Its usual course is down into the scrotum and up on the abdominal wall, but this depends upon the location of the rupture. The extension of inflammation down a follicle is probably frequently the starting point of the abscesses and the urinary extravasation.

Just as in all chronic urethral inflammations, the epithelial lining is thickened and there is a partial desquamation and a tendency toward the transformation of cylindrical epithelium into the stratified pavement.² The openings of the glands and follicles become dilated, and there may be a reticulated condition back of the stricture. The mucous membrane may be dilated into pouches at the weak points in the surrounding tissue, and here, where the urine is not swept out at each act of urination, it may undergo decomposition and in some cases form calculi. The inflammation extends back toward the bladder, involving the glands of Cowper, with their ducts, the prostatic follicles, the ejaculatory ducts and the seminal vesicles. There may be a urethrocystitis with frequent urination, tenesmus and an urgent desire to urinate.

The mucous membrane of the bladder becomes thickened, soft and pulpy, and much congested in patches, or the entire wall may be of a dark red color and covered with slimy mucus. The retained, decomposing urine sets up the inflammatory process. The bladder wall hypertrophies to overcome the retardation of the flow of urine, and the bundles of muscle fibers stand out in ridges. This may progress to a *concentric hypertrophy*, where the wall becomes 1 to 2 cm. ($\frac{1}{2}$ to $\frac{3}{4}$ in.) thick, and the capacity of the bladder is greatly diminished.

A more likely change, however, is gradual dilatation and thinning of the wall, *eccentric hypertrophy*, the mucous membrane being forced out into sacculi at the points of least resistance. Retained urine may decompose and form encysted calculi. The weakening, thinning, and distention may cause it to rupture with extravasation of urine. This is more rare than rupture of the urethra.

The inflammation and dilatation finally involve the ureters, with a thinning of their walls and an extension of the process to the pelves

of the kidneys. The urine now contains albumin, and there is a deposit of round cells throughout the kidney substance. Infection may reach it and abscesses form, resulting in the condition known as surgical kidney.

The Constitutional Treatment.—In no disease is a well ordered, temperate life so necessary as in the management of a stricture. The weakened condition of the kidneys requires that the duty imposed upon them be lessened as much as possible by a light nourishing diet, regulation of the bowels, and maintaining a healthy condition of the skin by frequent bathing and friction; stimulants, especially effervescing ones, as beer and champagne, highly seasoned food, cheese, cabbage, salt meats, strong coffee, and all articles which tend to load the urine should be avoided.⁶ Sexual excesses and tobacco are harmful, as is exposure to cold and wet, especially chilling of the feet and legs.⁷ Flannels should be worn in cold weather. Moderate exercise, avoiding overexertion or fatigue, is useful in maintaining the general health. A hot sitz bath just before retiring lessens the congestion of the pelvic viscera and tends to prevent spasm and congestion of the stricture.⁷

Attention to the urethral inflammation is always important in the management of a stricture, for it not only diminishes the danger of complications and relieves many of the symptoms, but also brings the tissues around the stricture into a more normal condition, thereby increasing their power to absorb the exudate. There are several methods that may be used with advantage by the surgeon in treating the inflammation, as hot irrigations; .3 to .6 gm. (gr. v-x) of nitrate of silver to the 30 c.c. (oz. i) of lanolin injected back of the stricture and into the deep urethra with a Tommasoli ointment carrier; the treatment with medicated sounds is of great value in treating the inflamed membrane and glands and at the same time dilating the stricture.

A frequent mistake made in the management of a stricture is to wait until the constriction is relieved before attempting to cure the inflammatory symptoms. The fact that the inflammation is the primary trouble and that the stricture is secondary, from a localization of the inflammatory process, seems to be ignored by the majority of surgeons in dealing with this condition. Why not apply the rule so constantly used in medicine and surgery, to remove the cause, if possible, in treating a disease? If this localized patch of inflammation was a factor in depositing the infiltrate that formed the stricture, have we any reason to believe the continuation of this inflammation will not still act as a cause, and by a further infiltration increase the size of the stricture? The continued inflammatory action in the mucous membrane and follicles at other points in front of the stricture must have the same tendency to cause an infiltrate and stricture that exists in any other chronic urethritis.

I fully appreciate the part a constriction plays in keeping up the inflammation back of it, as well as the tendency of the inflammation of the urethra at the stricture to increase the size of the deposit there, or result in a second coarctation in the canal anterior to it. Bear in mind this "vicious circle," and that both dilating the canal and allaying the inflammation will certainly afford the most satisfactory results, increasing the number of cures by gradual dilatation by decreasing the number of irritable and resilient strictures. To obtain dilatation and at the same time medication of the mucous membrane and glandular depressions, with massage of the inflammatory exudate, I know of no treatment superior to the sounds coated with solidified ointment, as described later.

By careful attention to the inflammation of the urethra and to the general hygiene, much better results may be obtained from either dilatation or urethrotomy, for even when the stricture is incised its absorption can take place more promptly if the surrounding tissues are more healthy. The condition back of the obstruction is further improved by systematic milking of the penis by the patient after each act of micturition to remove the small quantity of urine that tends to remain and increase the inflammation, and perhaps finally cause an ulcer or a weak point through which infected urine may be forced and result in an abscess or urinary infiltration. Treatment of the mucous membrane to relieve the inflammation lessens the danger of such a consequence.

Selection of the Method of Procedure.—This often requires much "nicety of judgment," for upon it and the attention to details largely depends the success of the treatment. The location of the stricture, its duration, density and caliber, the secondary damage already done, and the general health of the patient, with special reference to the bladder and kidneys, are all to be considered.

Strictures near the meatus must always be *incised*, as the abundant nerve supply makes any attempt at dilatation very painful and the tissues do not dilate. The results are always unsatisfactory. Simply a small meatus without any symptoms referable to it should not be interfered with, however, as many patients are made more susceptible to subsequent infections, and have the discomfort of spraying the urinary stream on account of a useless operation, perhaps, for some vague urinary symptoms that a more careful surgeon finds are due in many cases to a nodule in the prostate or a chronic inflammation of the deep urethra. If there is a pouching of the canal just back of the meatus, it should be incised. There are also certain cases of gleet due to inflammation posterior to it that are cured by this operation. It is also necessary in the treatment of deeper strictures. Indiscriminate meatotomy, however, is to be heartily condemned.

Dilatation.—The consensus of opinion is that this is the safest and most efficient method of treating strictures, except in the anterior part of the canal, where they should be cut. This may be applied to all permeable strictures. Soft recent ones may be permanently cured by this method. Dense, fibrous, inodular strictures are *cured* with difficulty, if at all, by any procedure; it is usually best to incise them and then treat with sounds, to remove some of the abnormal tissue, as it is not in keeping with other pathological observations to believe that making an incision in an old inodular stricture will result in its absorption.² The wound is repaired with a scar which eventually contracts as all scar tissue does, and we still have a ring of fibrous tissue around the urethra, of larger caliber, perhaps, but always liable to contract unless sounds are passed at intervals of varying lengths.

Generally speaking, one may say that all uncomplicated strictures except those near the meatus should be treated by gradual dilatation where there are no contraindications, or an irritable or resilient stricture. Strictures complicated with abscess, urinary infiltration, or intractable cystitis should not be treated by dilatation, but as a rule by external perineal urethrotomy. Attention to the general health, diet and hygiene, with judicious treatment of the inflammation of the urethra as described, will enable the surgeon to treat successfully the larger number of strictures by gradual dilatation, which undoubtedly is the safest method and at the same time furnishes the most permanent results. "Do not be a partisan of any single method, but consider carefully the selection of the treatment for each individual case."

Internal urethrotomy may best be considered as a valuable adjunct to gradual dilatation, for incision of an irritable or resilient stricture enables the surgeon to remove at least part of the deposit by passing sounds and massage, as well as to lessen the inflammation of the canal.

Just as good results come from meatotomy, which is incising a normal narrowing. Thus the best results come from internal urethrotomy in those cases where the inflammatory deposit is engrafted upon a normal narrowing. It is in such cases that permanent cures may come from internal urethrotomy, because inflammation at a point of normal contraction and the irritation and friction of the stream of urine results in the round-cell infiltration and stricture.⁷ By removing the point of narrowing, even though it were a normal one at the start, the irritation caused by it ceases, the vicious circle is broken, and as part of the cause of inflammation is relieved, the condition of the canal improves and more or less of the exudate may be absorbed.

According to my conception of the pathology of strictures, I cannot see how *cures* may be effected by internal urethrotomy, except in some condition similar to the one just described. Let

us consider a moment the cicatricial contraction about the eye in case of an ectropion; will an incision of this scar prevent its contraction? All will say, No. Is not the stricture similar to scar tissue? Evidence that they do recontract even when *all* the stricture is cut, is shown in the cases of external urethrotomy, where the stricture recurs after *complete division*. That they recontract at times after thorough dilatation I do not deny, but I do claim that the rationale of treating a stricture by gradual dilatation is more evident than by internal urethrotomy, except in the cases excluded above.

Internal urethrotomy of strictures of the deep urethra is dangerous on account of the excessive blood supply, poor drainage, and abundant nerve connections. The deeper the stricture, the greater is the danger of internal incision, but as these usually respond more readily to dilatation than those in the penile urethra, it is rarely necessary.

External perineal urethrotomy is indicated in those cases where stricture of the deep urethra fails to respond to dilatation or is irritable or resilient or complicated by abscesses or urinary infiltration, or where inflammation of the bladder demands this operation in order to secure good drainage. This may also be used when, after much patient work, a filiform has been introduced into the bladder.

False passages may also indicate this procedure. Complete retention of urine with an impassable stricture always demands this operation, and it is better not to waste too much time trying to pass a filiform when the symptoms are *urgent*, but to use a curved trocar, as will be described later, and do a retrograde catheterization to enable the surgeon to find the posterior urethra, cut the stricture, and reach the bladder. This is far preferable to the Wheelhouse or Cock's operation.

Syme⁸ advocated external perineal urethrotomy for uncomplicated, irritable or resilient strictures of the deep urethra, and this method has proven of service in a certain number of cases where persistent dilatation fails and the symptoms caused are of sufficient consequence to justify such radical measures to relieve them, as the mortality is lower and the results better than from internal urethrotomy.

Forcible dilatation and divulsion are unsatisfactory, and only in rare instances is the surgeon justified in adopting these methods. In certain cases where extreme dilatation is desired without so wide an incision of the meatus, the Kohlmann dilator may be used, but great care must be taken to avoid more rapid dilatation than would result from gradual dilatation with sounds.

Continuous dilatation is to be used only in cases where with great difficulty a filiform has been passed through a tight stricture or by a false passage. It may be left in twelve to twenty-four hours to ensure the passage of other

filiforms or a larger instrument and start gradual dilatation later.

Removal of strictures by caustic is purely of historic interest, as the constriction that followed the healing process was always worse than the original obstruction. Electrolysis has also been shown to possess little value. Total excision of extensive inodular strictures has been done with success, but this operation is rarely required except in traumatic strictures.

The theories of the changes that take place while gradually dilating a stricture have been varied and unsatisfactory. Most authorities agree that the sound, acting as a foreign body, and by the pressure, causes a reaction and absorption of a small amount of the tissue. Just why this absorption should take place has not been clearly shown, and as the condition is one that cannot be studied very well during the treatment, we can only make conjectures as to the process. From a study, however, of the pathology and the results from the different treatments, it seems that the sound in passing the stricture injures, by pressure, stretching or rupturing, the tighter fibers of the constriction, and if the number of injured fibers and cells are small they probably undergo a necrosis and are absorbed. If, however, the damage is extensive, it is repaired by scar tissue just as an injury to any other part of the body. The cicatricial tissue then contracts and defeats the very object we desire. This fact is clearly shown by the results which follow divulsion of the urethra or two rapid or rough dilatation. Our object by gradual dilatation is, at each treatment to make minute injuries of the constricting fibers or cells, to cause them to undergo necrosis and be absorbed without doing sufficient damage to require repair by scar tissue.

Massage on the sound and treatment of the inflammation around the stricture improve the tone of the blood vessels and lymphatics, and in this way hasten absorption. As this is only a theory from study of the pathology, treatment and results from various methods, it would not be given but for the fact that it emphasizes a point which I desire should receive most careful attention, and that is the importance of *gradual dilatation with sounds, that require no force to pass the constriction, and appropriate treatment of the inflamed urethra*. If the surgeon has this tangible conception of the good that is to be derived from very gradual dilatation, he will be far less liable to develop an irritable, intractable stricture from one that, properly treated, would be easily cured. Let him always bear in mind that when much force is used, damage is done that will be repaired by scar tissue, which will ultimately contract.

A number of authors mention cases that readily yield to treatment by dilatation up to a certain point and then refuse to be further dilated, and an irritable condition develops. My idea of these cases is, that they are strictures devel-

oped at normal narrowings in the canal, and as long as it is the adventitious exudate that is being absorbed all is well, but when the normal narrowing begins to be dilated trouble begins, just as if a narrow meatus were being dilated. Incision will give prompt and satisfactory results. It is by failing to recognize these points of physiological narrowings and by *too rapid dilatation*, that reproach is brought upon the method of gradual dilatation. Normal narrowings deeper in the urethral canal yield almost as poorly to dilatation as does the meatus, and must always be cut.

The treatment by *gradual dilatation* is the simplest, safest and most efficient method of treating strictures. It does more than dilate the constriction, for, like pressure elsewhere, it has the power of producing absorption of the inflammatory deposit,⁶ and undoubtedly this takes place more rapidly if the surrounding tissues are more nearly normal than if they are chronically inflamed. A thorough examination should always be made, noting the condition of the kidneys, bladder, prostate, urethra, and the number, location, and character of the strictures. After the examination the urethra is irrigated with a weak hot solution of boric acid, potassium permanganate, or mercuric chloride, and 2 gm. (5ss) of the following salve:

℞ Nitrate of silver.....0.3 gm. (gr. v)
Glycerin.....4 gm. (3i)
Lanolin.....30 gm. (3i)

This is introduced just back of the stricture and into the deep urethra with a Tomassoli ointment carrier, to allay the inflammation. This treatment is repeated on the following day. In case the reaction from the exploration was excessive and the canal is very sensitive and the discharge more profuse and purulent, the irrigation only is used. On the third or fourth day the largest sound that will pass easily is cooled in ice water and introduced and retained for five to eight minutes and then replaced by another sound three sizes (French scale) smaller, covered with solidified ointment. These are prepared as follows: Cocoa butter, 180 gm. (3vi), containing 2 to 3 gm. (gr. xxx to xlv) of nitrate of silver, is melted and the sounds are sterilized and placed in a pitcher of ice water; the smaller one is dipped into the medicated ointment and then manipulated so as to obtain a smooth uniform layer as it hardens. This may be placed in the water until needed. The first sound is passed and having prepared the way, the medicated one may now be introduced, and the ointment massaged into the folds, follicles and depressions of the mucous membrane, especial attention being paid to the indurated points and stricture. The nervous chills that sometimes follow the introduction of the instruments from the vasomotor disturbance may be prevented by the use of sounds prepared in this way with cocaine to anesthetize the urethra and block the passage of the impressions that cause them.

These treatments are to be preceded by irrigations, and repeated daily, every second or third day as the symptoms and reactions indicate.

It is far preferable to dilate the stricture to a *slight degree* and treat the inflammation daily or every second day with sounds that will easily pass and not create an excessive reaction, than to introduce much larger sounds less frequently. An increase of one size French every other treatment will usually be most satisfactory and permanent in its results. The ointment-coated sound may be left in the urethra three to five minutes. The gradual dilatation, cold, medication and massage enable one by a single treatment to bring into play more factors to relieve the constriction, lessen the inflammation of the mucous membrane and glands, and to hasten the absorption of the inflammatory exudate, than by any other single treatment.

Certain cases will resent the introduction of a cold sound until the inflammation has somewhat subsided, and in these cases the stricture is dilated *very gradually* with plain sounds, but after each treatment the ointment of nitrate of silver and lanolin is deposited back of the stricture and also in the deep urethra, as it is usually involved. This is also valuable in treating the inflammation posterior to the stricture between the dilatations when the interval is of several days' duration.

Daily irrigations are necessary in all of these cases as well as in those of small calibre, which should be dilated gradually with gum instruments, after which the salve is deposited back of the stricture with an ointment carrier. The dilatation progresses more rapidly in small strictures than in those of large caliber.

The increase in the size of the sounds in all cases is determined by the reaction which follows, by the ease in passing the instruments, and by the "grasping." The surgeon has constantly a demand for the use of good judgment in deciding upon the frequency of the treatments and the size of the instruments to be used.

Haste is always harmful, and it is far better to dilate several times with the same sound and massage the stricture, than to use one that causes pain and an over-reaction. The surgeon must constantly bear in mind that his effort is not to *divulse* the stricture, but to aid in its absorption, and this is best attained when the mucous membrane and urethral walls surrounding it are most nearly normal and the reaction is slight and of short duration. This should be kept up regularly until the symptoms and caliber justify less frequent treatment. So great is the difference in the character of strictures that it is almost impossible to give in days, weeks or months the time required for a cure. Recent soft constrictions are usually very prompt to yield, but old, inodular ones are just the reverse, and between these extremes there is an infinite variety. As a preliminary it is sometimes necessary to do

internal urethrotomy, where the stricture is irritable or resilient, or is situated upon a point of normal narrowing which always dilates poorly. After internal urethrotomy the infiltrate can be absorbed much more rapidly if the above treatment is adopted.

When 28 F. to 32 F. is reached, the canal may usually be considered normal, unless induration still persists. By carefully carrying out the above technic and treatment, all the urinary and sexual functions rapidly improve and a lingering gleet is rarely encountered after the constriction is removed. The strength of ointment is to be gradually increased as the urethra will bear it. Other drugs than nitrate of silver may be used as may seem to be indicated for the case in hand.

Further good that comes from this method of treatment is a lessened tendency for instrumentation, to be followed by rigors and fever. Argued either from the standpoint of the surgeons, who claim that the trouble results from absorption back of the stricture, or from the other view, that the cause is reflex from the sympathetic connection, both would naturally be less marked if the inflammation of the canal be diminished. By using proper care in the treatment to obtain bland, unirritating urine, and by irrigating the canal and sterilizing all instruments, serious complications are rare. No method is more conservative or is likely to cause less difficulty when secondary kidney lesions exist.

The patient is shown the importance of a careful, regular life, and is instructed to milk gently down the last few drops of urine that remain behind the stricture at the end of each act of micturition, which is an irritant and increases the inflammation. The facility of doing this decreases as the deep urethra is approached, and in the bulb requires more care and upward pressure along the urethral canal to force the urine through the stricture. By decreasing the urethral inflammation and attention to diet, hygiene, etc., the tendency to acute retention is greatly lessened.

The progress is more rapid at first in strictures of small caliber, but becomes slower as the canal becomes more nearly normal. Generally speaking, the more abnormal the constricting tissue, the more successful is the dilatation; whereas the nearer normal the obstruction, the more efficient is the treatment by internal urethrotomy.

Difficult Cases.—Eccentric openings, tortuous strictures, and false passages are the most frequent causes of failure of a competent surgeon to pass instruments. The infiltrate is usually most marked in the lower urethral wall, but may be at any other point. This, and the looseness of the lower segment of the canal, make it the most frequent seat of false passages. In introducing a sound, the point of the instrument should always be kept well up against the superior wall (except at the meatus), which is the

most fixed part of the urethra. If difficulty is experienced in passing the stricture, the urethra is filled with olive oil and fine French filiforms are introduced. These are preferable to the sharp and more rigid whalebone filiforms when they can be used.³ If a straight filiform fails to pass, one of whalebone, with an abruptly bent point or twisted into a spiral, should be tried. Many years ago Gouley recommended that filiforms be passed until the false passages and depressions in the mucous membrane were all filled with them, and by successively moving one after another, the stricture could usually be passed. By dipping whalebone filiforms into hot water they may be bent as desired and retain the shape when cool. The reticulated condition back of the stricture sometimes stops the filiform, after the stricture is passed. Kümmell has introduced fine probes through the endoscope after other methods had failed.³ If there is doubt as to being able to pass the filiform again, one of several courses is open to the surgeon, according to the conditions, surroundings, and urgency of the symptoms. The treatment must always be sufficiently radical to overcome the inflammatory reaction which follows the passage of an instrument, otherwise complete retention may supervene: (1) The filiform may be left in place for twelve to twenty-four hours and gradual dilatation instituted. The propriety of this depends upon the history of the stricture and the prospects of cure by this method. The urine will gradually pass along the filiform, so that even if there is some retention it will not contraindicate the adoption of this procedure. (2) An internal urethrotomy may be done in the anterior urethra and sounds passed later to cause the absorption of the stricture. (3) An external urethrotomy is preferable where the symptoms are urgent, as in urinary infiltration, abscess, severe cystitis with distention and back pressure affecting the kidneys; also, if the stricture is irritable or resilient, a tunneled instrument may be passed over the filiform and the stricture divided. (4) Divulsion might be used in certain cases to relieve some of the urgent symptoms, and the cure carried out later by gradual dilatation. This should not be used unless there is some positive reason why the other more reliable methods should not be employed. In case a false passage is made the urethra is irrigated and the patient kept quiet on a light diet, bland drinks, and urinary antiseptics. No further attempts are to be made for about three weeks, unless there is some distinct reason for interfering.

Internal Urethrotomy.—This operation has a mortality of about 2 per cent., which increases with the depth of the stricture. This danger, though slight, should always be remembered in deciding upon the procedure. The patient's general health and the condition of the kidneys, bladder and urethra should be brought as nearly normal as possible by a few days or a week's preliminary treatment, and the urine rendered bland

and free from infection by the administration of drugs, as boric acid, salol, and urotropin.

The urethra is irrigated and anesthetized with cocaine, 2 to 4 per cent., or a 5-per-cent. solution of cocaine in distilled water, or in a somewhat stronger solution in cocoa butter solidified on a sound, as preferred or indicated. A general anesthetic is rarely necessary.

Very satisfactory anesthesia may be obtained by the injection of $\frac{1}{8}$ to $\frac{1}{4}$ grain cocaine into the root of the penis around the nerves as they emerge from beneath the symphysis pubis. I have used this method many times, since the idea occurred to me about six months ago, and have found it very useful in any operative procedure in the anterior portion of the penis. (It seems particularly indicated in priapism and in cauterizing chancroids, etc.)

Internal urethrotomy is applicable to strictures of the deep urethra in which dilatation has failed or has been rendered impossible by the presence of dense, firm strictures, and in certain cases where it appears feasible, to restore quickly the normal caliber⁸ and hasten the absorption by the treatment with gradual dilatation with medicated sounds and massage of the infiltrated points. Urethrotomy is best suited to "valves or bands" or normal narrowings, but is not applicable to impermeable strictures or those complicated with urinary infiltration or with abscesses or fistulæ.

The various instruments that have been devised for this operation will not be discussed, but the one the surgeon is most accustomed to is usually the most desirable. The caliber of the stricture is also a factor to be considered in selecting an instrument, for if the constriction is very tight, a Maissonneuve, or Gouley's small tunneled urethrotome, to follow a filiform, is necessary to get the canal large enough for a dilating urethrotome. The Otis-Wyeth is very satisfactory, and is to be introduced until the point from which the blade will emerge is well back of the stricture. The incision is to be made in the roof of the canal in the median line, after dilating until the tension of the stricture is felt. The blade is now brought forward firmly and steadily, cutting the entire stricture and for a small distance in front and behind the constriction. The blade is replaced and the instruments removed, taking care to avoid cutting the mucous membrane, and a bulbous bougie is passed to determine if all the stricture is cut. If not, another incision is made to complete the operation. A sound is passed to insure patency of the canal.

The hemorrhage is usually not severe, and may be checked by pressure on the penis at that point, or by the application of cold. If necessary, a catheter may be passed and pressure applied around it until checked, or a perineal pad lightly applied.

The patient should remain quiet in bed several days on a light diet and plenty of diluent

drinks. Before leaving the patient, usually give a suppository of

R Extr. opii.....	gm. .06 (gr. 1)
Extr. hyocyamus.....	gm. .03 (gr. $\frac{1}{2}$)
Extr. belladonna.....	gm. .015 (gr. $\frac{1}{4}$)

to allay pain, and to lessen the danger of a chill. Prevent erections, which may cause hemorrhage and pain, by similar suppository, with monobromate of camphor gm. .3 (gr. v.). On the third or fourth day, if there is no hemorrhage, pass a medicated sound and repeat every few days or week until there is reason to believe the large part of the adventitious tissue has been absorbed.

External Peritoneal Urethrotomy.—Celsus gave directions for this operation for calculi, and Rhazes, in the tenth century, and Avicenna, in the eleventh century, are referred to as speaking of an incision in the urethra through the perineum for relief of retention of urine. It was used in a sporadic way until the nineteenth century.⁹ The mortality was very high.

This is the method of treatment to be resorted to when the simpler methods fail or where there are complications, as an abscess or urinary infiltration, or when the bladder infection requires drainage. It is also safer than internal urethrotomy when the stricture is located in the deep urethra. Where the symptoms refuse to yield to dilatation good results have been obtained by external perineal urethrotomy. The operation is comparatively simple if a grooved catheter or sound, or even a filiform, can be passed.

The rules of Syme⁸ are, briefly: "Be positive the guide has penetrated the stricture and entered the bladder, especially if false passages exist. Take care not to deviate the incision from the median line, and in this way avoid blood vessels. Keep the edge of the knife mainly upward to avoid opening the posterior layer of the perineum with consequent infiltration of urine. Insert the point of the knife posterior to the stricture and incise it by cutting from behind forward in the groove of the guide. Use a broad director to aid the passage of the instrument into the bladder if difficulty is encountered without guide."

Of more difficulty and danger are the cases where no instrument can be passed, even after the patient is anesthetized. This attempt should always be made, however, as the muscles may be relaxed so that the instrument will pass then, although they could not be introduced before. If this fails, after a careful, patient attempt, the method suggested by G. W. Penn,¹⁰ of using a large curved trocar to puncture the bladder just above the symphysis pubis, is used, and a retrograde catheterization is done through the trocar with a blunt-pointed instrument having the same curve. This easily finds the dilated canal posterior to the stricture, and by using this, in addition to an instrument in the anterior canal

down to the stricture, it can be easily incised and the bladder reached without difficulty.

The operations of Wheelhouse and of Cock should always be replaced by this simple, safe and efficient procedure which completely removes the element of doubt and uncertainty that was invariably associated with the older methods, and lessens to a marked degree the shock of a prolonged search or a suprapubic cystotomy with its additional dangers.

The after-treatment of these operations is the same, whether done with or without a guide. The hemorrhage is usually not severe if the incision is kept strictly in the mid-line, and may be checked by clamping and tying spurting arteries and applying pressure with gauze around a catheter. A drainage tube may or may not be left in for twenty-four to forty-eight hours, as the conditions indicate. The tube may be connected, when the patient is placed in bed, with a long one leading to a receptacle for the urine. An abundant dressing of sterile gauze and cotton is applied and changed as often as soaked with the discharges. About the fourth or fifth day full-sized sounds are passed, and this procedure is repeated every three or four days as long as indicated. Light diet, bland diluent drinks, and urinary antiseptics are required.

Excision of Strictures.—König, in 1880, excised the scar tissue and united the ends of the resected urethra with sutures in the anterior wall only. Since then Mikulicz,¹¹ Tuttle¹² Guyon, Socin and many others have done the operation and closed the entire circumference, but leave a drain in the outer wound. This operation is rarely necessary in gonorrheal strictures, except those caused by "breaking the cord."³

REFERENCES.

1. Thompson: Genito-Urinary Diseases, 1870.
2. White and Martin: Genito-Urinary Diseases.
3. Von Bergmann's System Practical Surgery.
4. Follet: Archiv. Gen. de Méd., Paris, 1857.
5. Dionis: Cours d'opérations de Chirurg., Paris, 1765; loc. cit., Gouley.
6. Bumstead and Taylor: Venereal Diseases.
7. Lydston: Amer. Text Book Genito-Urinary Diseases, 1898.
8. Syme: Contributions to the Practice and Path. of Surgery, 1848.
9. Gouley: Diseases of the Genito-Urinary Organs, 1873.
10. Penn: Jour. A. M. A., Jan. 9, 1904.
11. Mikulicz-Wagner: Centralblatt f. Chirurg., 1898, No. 30.
12. Tuttle: Jour. Cutan. and G. U. Diseases, 1899.

TREATMENT OF TUBERCULOSIS.¹

BY IRWIN H. HANCE, M.D.,

OF LAKEWOOD, N. J.

MANY of my hearers well remember what the treatment of consumption was and amounted to ten to twenty years ago. It may have been characterized by hopelessness on the part of the physician who ordered the treatment; an imperfect knowledge and understanding of what the disease was, the symptoms indicated and particularly how best to overcome them; and likewise by depression and discouragement on the

part of the patient, who felt there was but one ending to the disease—the grave.

Light has been breaking through the darkness, gloom and despair surrounding these unfortunates of the great army of the White Plague with ever-increasing intensity year after year, until to-day countless numbers of physicians, scientists, philanthropists, legislators and the laity throughout the whole civilized world are enrolled together to fight this dread destroyer of the home. This powerful united action along the propaganda of education is waging a victorious warfare; another decade will reveal astonishing results; upon you and me as physicians rests a great responsibility in furthering the success of these combined efforts. To us first of all comes the consumptive; begin at once with the proper treatment and instruct the patient what to do so as to prevent the communication of the disease to others.

Tuberculosis is Curable.—Some, possibly many, of you are skeptical about this statement; it is proven by the autopsies made upon thousands of persons dying of other diseases, sudden deaths, accidents, operations, etc. Osler gives the percentage of healed pulmonary lesions at 7.5, Biggs, 30 per cent.¹

The writer began his work in tuberculosis over fourteen years ago, in 1891, and was resident physician of the Adirondack Cottage Sanatorium for nearly five years. He personally knows of twelve physicians who positively had tuberculosis, eight of them have remained cured of their disease for thirteen years or longer, two for twelve and two for ten years. This is his own personal clinical proof of its curability among his confrères alone. Lawrason Brown² in a summary of 1,500 cases discharged from the Adirondack Cottage Sanatorium from two to eighteen years, gives the following: 1,066 patients were traced, 434 untraced. Of these 1,066, 46.7 per cent. are still living; 30 per cent. are well; 6.5 per cent. arrested; 4 per cent. have relapsed; 5.2 per cent. are chronic and 53.3 per cent. are dead. In other words, nearly one in three of all classes of patients treated remained well after two years or more.

The ideal means of treating this disease has not yet been discovered; while brilliant scientific research has demonstrated the possibilities of establishing immunity against the disease in animals, and the question of antitoxin treatment is still far from being solved, we need not supinely rest with our hands folded and leave our patients to their fate. The obligation is upon us and our duty is to cure them—many are cured without knowing it; we know of very many whom the physicians have cured; let each one of us add our quota to this number and our results will be surprising.

¹ S. A. Knopf: Pulmonary Tuberculosis, 1899.

² Lawrason Brown: An Analysis of Fifteen Hundred Cases of Tuberculosis, Journal American Medical Association, Nov. 20, 1903.

¹ Read before the New Jersey State Medical Society, at The Symposium on Tuberculosis, Long Branch, June 22, 1905.

To-day the sanatorium treatment is surely the best we can offer such patients; those at the head of such institutions are more thoroughly trained, have had larger experience; the patients are under closer observation and the more exacting details of the daily life are watched more carefully; the patients, by force of example, are more willing to obey instructions and the climate must be reckoned as of value; above everything is the educational side of this life as a means of instructing the patients, not only how to take care of themselves at the present time, but also in the future; and finally how to prevent re-infection of themselves and communicating the disease to others.

More far-reaching benefits than to the patients themselves are secured by the presence of such an institution since, instead of being a menace to the health of those residing in the locality, statistics have shown that the death-rate from tuberculosis has fallen in the vicinity of sanatoria and consequently the phthisiophobia of the individual or the community is groundless.

The sanatorium treatment owes its origin to Hermann Brehmer, in Silesia, in 1859, and in this country to Edward Livingston Trudeau, in 1884. The same line of treatment which is carried out in a sanatorium, modified to meet the requirements of the individual and his surroundings, is what we must make use of. Even though we know that the sanatorium is the best place for these cases, there are two strong reasons why the practical application of this treatment in the home is necessary; first, the capacity of all the sanatoria, State and private, and all other institutions of like character, would be sufficient to take care of only a fractional part of all tuberculous patients; second, only a small number of these patients could afford to pay for such treatment or absent themselves from their homes for the proper length of time.

The treatment implies a greater duty on the part of the physician than making a diagnosis, stating what the patient is to do, writing a prescription or two and telling the patient to come back in two weeks' time; on the part of the patient a greater willingness to obey implicitly the doctor's orders than is usually met with and a decision that he will assist the physician in every way. The physician must look with grave suspicion on every case of cough which presents itself to him; throat coughs, stomach coughs, bronchitic and asthmatic coughs, pleuritic coughs, etc., are terms much too commonly used by the physician to mask his unwillingness to tell the patient the exact condition of affairs. So it is with the terms "malaria" and the "grippe"; they serve too often as a cloak to cover a condition, the immediate recognition of which may insure the whole future well-being of the patient.

Above all things, always consider hemoptysis, or a little blood spitting, as direct evidence of tuberculous troubles unless you can positively

see a ruptured vessel as the cause for it. In all cases precious time is lost by not acting upon this plain warning, and in some precious lives are surely sacrificed. At all times the physician must avail himself of every scientific means to clinch the diagnosis; study well the pulse rate and have a temperature record which gives a morning, afternoon and evening temperature; inquire minutely into the patient's well-being during the preceding months and look with suspicion upon a steadily increasing loss of strength and health, and particularly upon a loss in bodily weight. In every case make use of the State laboratory for the examination of sputum; let this be supplementary to the most careful physical examination which must be made on the patient divested of all clothing covering the chest. Many a case of pleurisy is overlooked in women because the corsets were not removed. If in doubt and still suspicious of the presence of tuberculosis, do not defer your consultation until the progress of the disease has stamped itself so indelibly upon the patient's features that the looking-glass reveals the trouble to the patient before you yourself have told him what is the matter.

The open-air rest cure embodies the principles of the treatment, fresh air in the open as many hours as possible in each twenty-four hours, fresh air inside of the house day and night, rest in the open air, superabundance of good food, exercise only as it does not produce certain positive symptoms; the proper attention to the skin by bathing, and the general laws of hygiene.

Fresh air, with and without sunshine, with and without dampness, with and without winds, with heat and cold; all these conditions must be met with in overcoming the natural inborn antipathy of patients to live in the open. Healthy people are always afraid of catching "cold," and as your tuberculous patient has even greater dread of this same calamity it is no easy task to get him to live out-of-doors in all weathers.

These objections and fears, which are very vivid and real to your patients, must be overcome by patience, firmness and a rational clear-cut method of procedure on your part. Impress upon them and make them feel that you are right when you say that fresh air will not give them cold, but save them from it. Rain or dampness will not affect them at all if they are under cover and do not get themselves wet. To overcome the sensation of chilliness or cold (be sure to distinguish between the chill of the disease and cold) do not use too heavy undergarments, but clothe with outer garments of heavy woolen texture or furs sufficient to keep warm out of doors. This is very essential, for otherwise when the patient goes indoors he will be likely to become overheated; the more completely they live an out-of-door life the less artificial heat do they require in the house and they can more readily divest themselves of or put on outside garments to keep themselves comfortable.

When treatment is begun in the colder months, instruct them to sit out an hour and then, if chilly, go in for a short time; by this means, after a period of a few days, you can readily accustom them to spend all their time in the air. When dealing with the symptoms of chilliness due to the disease, keep the patient in bed or on a lounge in the air, as this is the only means of combating the disease.

Avoid heavy winds by selecting a corner of the veranda which faces away from the prevailing wind. Flood the bedroom with air by opening wide the windows, thereby avoiding the smaller currents of air. When a patient sleeps out of doors a southern exposure is to be selected. This procedure, as also the sleeping contrivances whereby the patient sleeps with the head out of the window or with a hood over the head of the bed which is attached to the open sash and sides of the window, and then fastened under the top and inner sides of mattress, thereby preventing the temperature of the room becoming so intensely cold, demonstrate clearly that the patient is not harmed by large currents of air. When possible, patients should dress and undress in some other room than the one in which they sleep. One of the most prominent advocates of ventilation and the air-bath was Benjamin Franklin; Parton, in his autobiography, goes on to say: "He spoke, and the windows of hospitals were lowered; consumption ceased to gasp and fever to inhale poison"; truly an extravagant statement during his time, but which now approaches its consummation.

Rest must be absolute in all cases of hemorrhage, when the temperature is above 101° F., where the heart action is over 100, when there is a daily chill, during the first few weeks while you are observing the type of disease you are dealing with, in pleuritic cases when cough is increased by moving about, or when some fluid is found in pleural cavity, when patient continues to lose flesh or under treatment remains stationary well below the average weight. In the acute case or acute exacerbations of more chronic conditions the bed is imperative; in all cases save your patients every ounce of wasted energy and let them use it in building up their nutrition or increasing their resisting powers.

Food.—Usually the tuberculous patient has no appetite and yet food is the only means of overcoming the disease, and oversupplying the large daily bodily waste; superalimentation is the key-note of success; thereby you restore the appetite as well as the strength of your patient by natural means, instead of by stimulating tonic drugs, and a strict dietary should be given to each individual patient explaining how he can take the amount of food you require him to take. Meat should be eaten at least twice daily, and where possible add the squeezed juice of one-half to one pound of beef. Eggs are best taken raw, immediately after finishing the meals;

begin on one each day and increase until at least six are taken daily. From one to one and one-half quarts of milk must be taken every twenty-four hours—one glass on awakening, one at meals, one in the middle of the morning and afternoon and at bed-time can readily be taken. Fat in the form of cream, butter, oily dressings and olives is to be freely taken. Add to these whatever the patient desires in the form of fruits, vegetables, cereals, etc., only avoid the free use of teas, coffees, sweets and pastries, pickles and highly-seasoned food.

Alcohol, despite the commonly reported good effects from its use, and tuberculosis are antagonistic, and the physician will find a very small percentage of cases in which it is indicated. Exercise must be controlled by the physician. The advice so often given to "Go West, young man, buy a horse and live out of doors," has sacrificed many a precious life. Do not exercise if hemoptysis occurs and never violently in hemorrhage cases; if temperature rises; if palpitation occurs; if dyspnea supervenes or cough is excited; or if it results in loss of weight. A good general guide is the degree of fatigue resulting from muscular effort; never produce overfatigue.

Of great importance, and oftentimes greatly overlooked, is the question of bathing. The proper application of water will improve the surface circulation; act upon the vasomotor system so as to stimulate the functions of the secretory organs; improve the general nerve tone of the body; and save the patient from being affected by the temperature changes in the atmosphere.

Every patient, no matter how poor his surroundings, can sponge off the face and the upper extremities and the whole trunk down to the hips with cold water just as he washes his face on arising in the morning. Begin with cool water and lower the temperature daily until it is used as it comes from the faucet or well. If a bathtub is at hand run a few inches of warm water in tub and then sponge off the whole body with cold water as it runs from the tap. It may take a little time to accustom patients to the cold water, but once having educated them to its use they will never omit it.

A more vigorous and tonic procedure is to rub the patient all over with a very strong hot salt-water bath and then rub down with cold water afterward; this can be done in a bath-tub or with the patient lying in bed in a blanket. It does not need a skilled attendant; the hands should always be uncovered, no sponges or mittens used. These three forms of bath need not consume more than five to fifteen minutes, save when the salt rub is done in bed, when thirty minutes must be allowed.

The laws pertaining to hygiene should be most carefully looked after. The mere enumeration of them is all that is needed; the proper attention to the teeth, the mastication of the food, sufficient time for and regularity of the meals, the daily evacuation of the bowels; with women

give particular attention to the menstruation and do not seek to restore this function by drugs, if absent; always make an examination of the urine. Learn how much and how well your patients sleep. Finally, instruct one and all of them how to take care of their expectoration. Tell them emphatically that if they destroy their sputum they are to all intents and purposes incapable of communicating the disease to others. Compel them to use a disinfectant if they use spittoons—the simplest and surest means is to burn their expectorations; in lieu of cheese cloth or pieces of linen use a few pieces of toilet paper or newspaper; have a receptacle to throw them into and then burn the contents several times a day. Never permit your patients to spit into their handkerchiefs or swallow their expectorations. Various forms of spit-cups in paper and glass for pocket use are to be had.

Finally, as regards drugs, prescribe them only where a distinct indication for their use exists. For the cough, codeine and heroin have served the writer well—use as little as possible and stop them as quickly as you can. The use of carbonate of creosote in small doses (five to twenty minims after meals) will sometimes affect beneficially the cough and expectoration. Almost the only tonic the writer uses is the compound syrup of the hypophosphites, with or without strychnine. If you use cod-liver oil use it pure, and the best oil made; oil and water do not mix, and if the mouth and teeth and gums are thoroughly moistened with ice water and the surface of the spoon as well to prevent adhesion of the oil, a patient will scarcely taste the oil and will quickly get over any distaste for the drug. If only one dose a day is given for three days and then increased slowly until the full dose is reached, you will rarely have a patient come back to you and say that the oil was regurgitated. Remember you are going to use the oil for many weeks.

Success in treating this disease rests upon the tactful, sympathetic and painstaking manner of the physician in his dealings with his patient; in the constant care and personal supervision of his daily life and in noting every warning. The cooperation of the physician and patient is essential; this can never be secured unless you tell the patients what is the matter; the depression produced by the knowledge that they are victims of this disease is more quickly overcome now than later, and no one will blindly follow a physician's order unless a clear reason is given. The tuberculous individual must be made to understand that you are treating a disease and not simply a cough; hence he must be willing implicitly to follow orders; do not, because he does not go away for treatment, allow him to do any work at all for a considerable time; guard him from the officious interference of his relatives and friends; impress firmly upon him that it will take many months to get well and that the result rests entirely upon his own untiring efforts.

It is a hard task for a physician to tell a patient that he has consumption, yet it is his duty to do so and at once. Fortunately, the old pessimistic ideas concerning its incurability are now giving way to a more general optimism, which, if carried too far, may make the patient careless because he fails to recognize the danger he is in.

The writer knows how difficult it is to enlist the interest of the great body of physicians in treating faithfully this very chronic and to them uninteresting disease; if he succeeds in enrolling a few of those present in the ranks of the men who are working patiently for the welfare of such a large proportion of the community, he will feel that his small efforts have been fruitful of good, and he knows that the physician himself will be more than compensated by the knowledge that his future efforts will bring back health and happiness into the homes of many where gloom and despair formerly dwelt.

MEDICAL PROGRESS.

OBSTETRICS AND GYNECOLOGY.

Pathology and Treatment of Eclampsia.—Writing upon this interesting subject JOHN W. BYERS says (*Lancet*, September 9, 1905) the two views held at present as to the pathology of this disease are, (1) a number of disease entities are included under this term, each due to a different pathological lesion, and (2) eclampsia depends upon a poison, a toxin or series of toxins manufactured by the mother and fetus, and that the various changes found post mortem are caused by overaccumulation and non-elimination of these toxins. The toxemia view is the popular one at present, though it must be admitted that scientific proof of the existence of the specific causation is still wanting. By those seeking an explanation of eclampsia certain etiological points must be borne in mind. Why is eclampsia more common in primiparæ? Why is it more prevalent in certain districts? Why does it occur more frequently in certain years? And why does the death of the fetus lessen or abolish the prodromal symptoms? These points must be considered. The treatment is summarized as follows: Control the convulsions with sufficiently large doses of morphine subcutaneously rather than by chloroform inhalations. Keep the patient on her side, in order that fluid may not be inspired, and allow no liquids. Eliminate the poison by purgation, hot packs and by saline infusion. If labor has not set in, treat the convulsions, but do not induce premature action of the uterus. If labor has begun and the patient is in the second stage, and the os dilated, give chloroform and deliver by forceps, if possible, or by version. If, however, morphine and purgation with saline injections have been tried and the patient is not improving, dilate the cervix and deliver. For convulsions after delivery use morphine, purgation and saline infusion. The best prophylactic measures are rest, milk diet, warm baths and purgatives.

Treatment of Eclampsia.—Eclampsia is now recognized as one of the toxemias of pregnancy. The toxins arise from one of three sources. They may be due to faulty maternal metabolism, to abnormal conditions at the placental site, or they may be produced during the development of the ovum and pass into the maternal economy through the placenta.

The fact that eclampsia is limited to pregnancy, and that emptying the uterus in many cases gives prompt relief would seem to show that the maternal metabolism is not the source of the toxemia. The source is not at the placental site for the marked change, seen in so many cases after the uterus has been emptied is too rapid. The conclusion is that eclampsia is due to the absorption of products of fetal metabolism in excess of the maternal eliminative powers or that under the influence of pregnancy the maternal economy lacks the proper power of excretion. The distinction between a hepatic and renal group of eclampsia is probably a difference of degree rather than kind. The effects of the toxins are those of an irritant poison acting on the nerve centers and on the tissues themselves. The great dangers are from failure of the circulatory mechanism, due to tremendous blood pressure changes, induced by the convulsions or to exhaustion dependent upon the extra work thrown on the heart by overaction of the vasomotor system, and from the rupture of a cerebral vessel during the convulsions. F. S. NEWELL (*Am. Jour. Obstet.*, September, 1905) states that the treatment of eclampsia must be devoted to a removal of the source of the toxemia, relief of the heart by stopping the convulsions and relaxing the vasomotor spasm, securing the elimination of the toxins and the proper support of the patient. The prophylaxis consists in good hygiene, necessary catharsis, plenty of water between meals and daily baths. The appearance of convulsions or failure to reduce pronounced toxic symptoms calls for immediate radical treatment. To prevent further absorption the uterus should be emptied by the method which will give the least possible shock to the patient. The convulsions may be controlled by morphine and hyocine hydrobromate. Chloral occasionally acts well, but its absorption is slow. The use of chloroform or ether should be deprecated, but the administration of oxygen during the convulsion is strongly to be advised. The elimination of the toxins is best accomplished by the use of normal saline solution intravenously or subcutaneously. Nitroglycerin and hot packs may be of value; free stimulation should be used whenever necessary. After an eclamptic attack the patient should be kept quiet and on a fluid diet for several days.

Cæsarian Section.—J. D. VOORHEES (*Am. Jour. Obstet.*, August, 1905) has reported seven cases. From an exhaustive statistical review the writer shows that the fetal mortality is very high in all cases of operative delivery either by forceps or by version. The mortality is especially high in cases of contracted pelves. The statistics tend to show that Cæsarian section reduces the fetal mortality to a minimum, but is accompanied by a slight increase in the maternal mortality. The operation requires special training in surgical technic. The chief danger is infection; other dangers are hemorrhage, shock, embolism, intestinal adhesions, utero-abdominal fistula, hernia and rupture of the uterus in a subsequent pregnancy. In cases of extreme pelvic contraction, labor should be induced after the thirty-sixth or thirty-eighth week. If the attempt at delivery by the natural forces has failed, Cæsarian section should be resorted to. The writer condemns the employment of hysterectomy and oophorectomy as routine procedures to avoid subsequent pregnancy, in view of the favorable reports of repeated sections. Inasmuch as Cæsarian section is dangerous only when infection is present, and that there

are too many fetal deaths from other major operations, and considering the low maternal mortality, the field for Cæsarean section should be broadened.

Staphylococcus Puerperal Pyemia.—Puerperal pyemia may be caused by the *Streptococcus pyogenes*, *Staphylococcus pyogenes albus* and *aureus*, pneumococcus, gonococcus, *Bacterium coli* and the septic vibrio of Pasteur. J. SCHWETZ (*Annal. de Gynéc. et d'Obstet.*, July, 1905) reports a case in which the staphylococcus was found in pure culture at autopsy. Eleven cases of this variety of infection have been recorded. While the streptococcus infections are in general more severe, the writer does not consider that a distinction between the staphylococci and streptococci pyemias can be made during life by the clinical symptoms. Bacteriological examination is of value in serum therapy as a means of directing the kind of serum to be used.

Etiology and Diagnosis of Early Tubal Pregnancy.—WILLIAM E. GROUND (*Am. Med.*, September 2, 1905) during the last 10 years has operated in 28 cases of tubal pregnancy. Of these, 21 were operated after rupture and 7 before rupture had occurred. All pre-rupture cases were abdominal section. Of the complicated cases 16 were suprapubic and 5 by the vagina. All the patients recovered. All had demonstrable lesions sufficient to account for the arrest of the fecundated ovum in the tube. The results of gonorrheal infection and minor postpuerperal lesions were most frequently noted as etiologic factors. Early diagnosis and prompt operation in all cases is necessary to reduce mortality and prevent morbidity. In the vast majority of cases a diagnosis can be made before rupture, when the mortality will be no higher than interval operations in appendicitis. In Dr. Ground's cases 85 per cent. had been seen by one or more physicians before rupture occurred.

Some Gynecologic Superstitions.—LUCY WAITE (*Am. Med.*, September 2, 1905) states that gynecology has been encumbered with numerous dogmatic theories which have been stated and restated so many times that they have been finally accepted by the profession without question and have become veritable superstitions. She takes up the questions especially of backache and constipation as symptoms supposed to be caused by retrodisplacements of the uterus and shows by statistics that both of these conditions are present in a large percentage of antipositions and absent in a fair percentage of retropositions. In 1,000 cases taken from her clinic at the Mary Thompson Hospital 44 per cent. of the patients with antiposition gave a history of backache and 41 per cent. of the patients with retrodeviation stated definitely that they did not suffer with backache. In 500 cases 52 per cent. of the patients with antiposition gave a history of constipation, and of the cases of retroposition 34 per cent. of the patients reported normal bowel movements. The question of childbearing as a remedy in dysmenorrhea is also discussed. Of 300 patients the question, "Have you more or less pain since the birth of your children?" 45 per cent. reported more pain, 30 per cent. less and 25 per cent. no difference. Dr. Waite believes that the practical application of the statistics relating to the clinical significance of retroposition of the uterus bears directly on the enormous amount of unnecessary operating which is being done under the false impression that the symptoms of which the patient complains are due to the position of the uterus and the complications which are in reality responsible for the symptoms are overlooked.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor.
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, Including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in registered letters.

LEA BROTHERS & CO.,

No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, NOVEMBER 11, 1905.

ANNOUNCEMENT.

MESSRS. LEA BROTHERS & Co. take this opportunity of announcing that with the opening of the new year, the publication of the MEDICAL NEWS will be assumed by the A. R. Elliott Publishing Co., in conjunction with *The New York Medical Journal* and *The Philadelphia Medical Journal*.

In the arrangement of this transfer, both parties have been guided by the principal that a judicious consolidation promotes the interest of the medical profession, as well as of those who serve it. As a case in point, the contributors to the pages of the combined journal will gain a wider audience, their readers will be assured of improvements only rendered possible by such expansion, and advertisers will secure the advantage of wider publicity for their announcements.

THE BABES THAT ARE OUT OF THE WOODS.

So much has been said and so much more has been written, of late, in every language of the Universe, in regard to the alleged decrease in the population of the world that it is more than a matter of surprise that only one side of the predisposing cause seems to have been taken into consideration by the political economists of the

various nations that have been interesting themselves in the subject.

Now, it is a self-evident fact that all things being even, a decrease in the number of births will cause a diminution of the sum total of the population, but it is also equally apparent that an increase in the death rate will also produce the same result, even if the number of births remain the same. In other words, it is only a question of proportion between the two, and this obvious but important fact seems to have been entirely overlooked, particularly by the continental writers on the subject.

Thus, France, who is having her annual attack of hysteria on the subject, has flooded her Chamber of Deputies with bills, looking solely to the means of increasing her birthrate. Alphonse is to be patted on the back and lured into the wiles of early matrimony by the promise of a bonus of "head money" for each and every addition to the list of more than welcome little strangers. Gaston is to be cajoled with the statement that married men are to be exempt from conscription and military service. Other bills provide that all governmental situations and municipal positions are to be closed to bachelors. In fact, there are bills for everything, and everything seems to be very much in its place, as there are more of them relating to this subject than there are deputies themselves. What will be accomplished, however, seems to be something of a gamble, for these gamblers do not, or will not, recognize the fact that they are drawing to a "straight" that is open at both ends, and that the little that will be saved at the bunghole will be more than wasted at the spigot.

For France is spending millions of francs annually on the erection and maintenance of insane asylums, while her jails and poorhouses all are now overcrowded by the very class of young men to whom she must look for her future increase of population. Meanwhile the children, who have been born, are left in dire poverty and neglect, and, according to their own statistics, the death-rate among infants has become simply appalling. All this, according to the same authority, seems to be due to the enormously increased manufacture and use of adulterated cordials and drug-laden appetizers. Some time since Deputy Valliant, during a parliamentary debate on the liquor laws, made a motion that the French Academy of Medicine should be asked to submit a list of the alcoholic drinks containing essences

dangerous to the public health, that their manufacture might be forbidden and their sale in the cafés prohibited. As the minister in control, for financial considerations, failed to report the proposition, the Academy independently appointed a commission, under the chairmanship of M. Laborde, who sent the result of these examinations directly to the Chamber of Deputies.

As this report has been already published, it is not necessary to comment on it here, beyond the fact that it states that absinthe, which is perhaps the national drink, or beverage, of France, even in its best grades, contains most poisonous elements, while the other liqueurs, which are generally made from synthetic essences, are dangerous in the extreme. Even vermouth is no exception, and chartreuse contains thirteen substances which can produce serious results. Vulsary has fifteen, and anisette heads the list, with still more, while it also contains a quantity of hydrocyanic acid, which is unquestionably its legitimate spouse, while the others are mere correspondents. "For so strong is this essence," says the report, "that a few inhalations from a bottle containing it produce grave symptoms of syncope, and a feeling of illness that lasts for several days." As the sale of these liqueurs adds a large revenue to the government, no steps have as yet been taken to suppress or regulate their manufacture, so that the increase of the rate of infant mortality is hardly apt to be neutralized by the benefits that are to be bestowed on the groom or the "dot" that is to be promised to the bride.

As to Germany, there seems to be little doubt but what the anxious Kaiser will always find an increasing Army to command, for their birth-rate seems like a fixed quantity, and no fault has even been found with the maternal instinct of Gretchen. Little things that are "made in Germany" are invariably, as a class, well nursed and cared for, and the hygienic surroundings of children are better perhaps than of any other nation on earth, our own included.

Not that the American child, when *once born*, is not well cared for, or that there is any necessity for "a strenuous executive to turn his attention," as Mrs. Matilda Childe Dorr stated at a meeting of the New York State Federation of Woman's Clubs, recently held at Binghamton, "from settling disputes in football and wars, to his other hobby: the destiny of women." But here Mrs. Dorr, perhaps unconsciously but cer-

tainly most epigrammatically, struck the keynote of the American situation when she said, "the only difference between the 'new woman' and the 'old woman' is that the 'old woman' worked for her board and the 'new woman' works for wages."

And this, perhaps, is true. The bachelor girl has now a steadily increasing field of occupation. She has her bachelor apartments, her tailor-made clothes, her independence, both financially and socially, and a freedom from entangling alliances. She has also a noted dislike to being coerced on the marriage question, and her views seem to have been frankly uttered, at this same meeting, by an exponent of her class who is reported as saying, "The American woman is not a broodmare nor yet a patent incubator, and we object to President Roosevelt's well-known ideas about women and children."

SURGICAL RESEARCH LABORATORIES AND THE MEDICAL STUDENT.

THE need of a means to present to the medical student in a practical manner the difficult, intricate steps of certain surgical procedures has long been recognized. Yesterday, however, no university had felt justified in incurring the large expense of equipping and maintaining the extensive plant which such individual, technical, training calls for. To-day, laboratories of surgical technic and research have almost simultaneously sprung into life in most of the great Eastern medical centers.

Through the persistent efforts of Cushing, the trustees of Johns Hopkins Medical College were induced to erect a commodious and well-equipped three-story building forty by eighty feet in area to be devoted entirely to the practical teaching of surgery and physiology. The Columbia trustees have appropriated a liberal fund for the development of a Surgical Research Laboratory in a building already standing upon the grounds of the medical department. Harvard University has made far-seeing and far-reaching plans for the practical teaching of practical surgical problems in her magnificent new buildings of the Fenway.

What is the purport and significance of the rapid development of these new laboratories? What do they teach the student and how do they interdigitate with the existing system of didactic lectures, clinics and individual quizzing?

The system of laboratory instruction recently

adopted at the College of Physicians and Surgeons of Columbia University may profitably be studied.

The Surgical Research Laboratory was completed at the opening of the academic year. It consists of three good-sized rooms which are arranged as follows. Room "A" is the kennel. Here there are commodious and airy quarters for twenty-four animals. Room "B" contains a tier of six "recovery" cages where animals coming from under the influence of an anesthetic may be watched and made additionally comfortable. It is, in addition, used for storage and workshop. Room "C" is given over to research work and to the technical surgical training of sections from the third year class.

Following the suggestion of Cushing these sections are divided into: "operator, first and second assistant; anesthetist, censor and 'family physician.'" The censor exercises absolute power to enforce aseptic thoroughness; he "calls down" any member of the operating force for the slightest technical error. The family physician is the historian.

Eight two-hour sessions are held, during which time each man holds these positions at least once. While not actually operating, the men are taught to prepare catgut; to make and sterilize every kind of practical dressing needed at an operation; to mix and prepare as for operation all necessary hand, instrument, and injection solutions. The various technics taught are those used in the Syms operating room of Roosevelt Hospital. Any animals requiring surgical care are treated free. This ensures a constant variety of operative work and also offers material for pathological study.

The course at present is a voluntary one, but the fact that half the class, representing almost the entire academic element, have elected it is sufficient and striking evidence of the estimate in which this training is held by the more thoughtful undergraduates.

This answers the question as to the rapid development of these new surgical technical laboratories. The cry was from the students. They could not learn technic from didactic lectures—from clinics or even from the invaluable and far-reaching quiz system. Indeed, the undergraduates at Columbia felt the difficulty of mastering technic to be so insuperable that they addressed a memorial to the president of the university beseeching him to grant them more

complete surgical teaching than was at that time offered.

What do such laboratories teach the student? From one of the master surgical minds of the world, Maurice H. Richardson, we read in the *Journal of the American Medical Association* an article entitled "Surgical Responsibilities," what he considers essential in the training of a surgeon. "The importance of laboratory work—the so-called research work—in preparing a man to become a surgeon is great." "The student should be thoroughly trained in mechanical work; he should learn the use of tools of all kinds—machinists', carpenters' and forging. Mechanical skill alone, however, is of little value in the equipment of the surgeon without those finer mental qualities which enable him to make, from intelligent observation, accurate decisions."

Since it is not unlikely, as suggested by Richardson, that the time is near at hand when the practice of surgery shall be limited to those men specially trained and peculiarly qualified for its execution, must it not be looked upon as fortunate that the Surgical Technical Laboratory has come into being? Here, upon unconscious animals rather than upon the unfortunate but nevertheless sentient pauper population of our great hospitals, will an early decision be reached whether or not this or that student is qualified to take up the extremely difficult and exacting preparation for the career of a surgeon. For, at no distant time, must, by the very marvelous development of the art, this training, even in the medical school, be increasingly divergent and more arduous than that of the physician.

ECHOES AND NEWS.

NEW YORK.

Montefiore Home Report.—At the twenty-first annual meeting of the Montefiore Home President Jacob H. Schiff announced that the home gives treatment to 859 patients, of whom but 24 pay. The income from all classes of membership was \$92,179.60, against an expenditure of \$129,993.36, leaving a deficit of \$37,813.76. The home received from the Saturday and Sunday Hospital Association \$7,600, the largest award made to any institution in the association. This is because the Montefiore Home furnishes a larger amount of free treatment than any hospital in the city. The average per capita patient's cost, covering every expense, except permanent additions to property, was \$289.60, as against \$283.98 the preceding year, while the food account shows an average of 18.54 cents per diem. Addresses were delivered at the meeting by Isaac Wallach, president of Mount Sinai Hospital, and Isidor Straus, president of the Educational Alliance.

The following were elected directors to serve for three years: Ernest Ehrmann, Sol. R. Guggenheim, Sigmund M. Lehman, Joseph Moss, Jacob H. Schiff, and Fred. Sulzberger.

Dedication of the Philanthropin Hospital.—The Philanthropin Hospital, recently chartered by the State Board of Charities, was dedicated October 29. The temporary hospital building is located at the corner of Briggs Avenue and Maple Street, Williamsbridge, and the permanent hospital building will be in the immediate vicinity. The hospital was chartered last April to meet the growing requirements of this district. A dispensary service was established upon receipt of the charter, and its value was manifested this summer when *impetigo contagiosa* broke out in the Italian colony. Had this disease got a good start it would probably have spread all over the city, because of the handling of green vegetables by many of the people affected. The physicians of the Philanthropin worked vigorously at the contagion, and succeeded in overcoming it.

An Addition to St. Vincent's Hospital.—The seventh story addition to St. Vincent's Hospital, at Eleventh Street and Seventh Avenue, affording accommodation for 100 more patients than the institution has been able to receive, is now open. Archbishop Farley presided at the opening, and speeches were made by Dr. Frederick S. Dennis, John D. Crimmins and Father O'Flynn, of St. Joseph's Church. About 300 men and women, who have assisted the hospital financially, were present. In opening the proceedings, Archbishop Farley spoke of the great work of the Sisters of Charity in charge of the hospital, and referred to St. Vincent's as the greatest Catholic hospital in the country. Mr. Crimmins said that on January 1, 1896, the debt upon the hospital was \$187,000, but that in the nine years intervening this had been paid off, and that three lots on which the addition had been erected had been purchased at a cost of \$671,875. The present debt of the hospital, he said, was \$225,000. Dr. Dennis said that the hospital now had 425 beds, as against 30 in 1849, and had treated 22,695 patients last year, 3,102 of whom were charity patients. A total of 700,000 had been treated in the last nine years.

The American Tuberculosis Exhibition.—The announcement is made from the Committee on Arrangements for the American Tuberculosis Exhibition to be held in New York, November 27 to December 9, that the American Museum of Natural History has joined hands with the National Association for the Study and Prevention of Tuberculosis and the Committee on Tuberculosis of the Charity Organization Society to make the exhibition a success. Recognizing the educational value of the plan and accepting this as a part of the function as a public institution, writes *Charities*, the authorities of the museum have placed at the disposal of the committee a large exhibition hall and are throwing themselves energetically into the work of making the exhibition a notable factor in forcing information regarding tuberculosis before the people. A cordial reception has been given to the scheme by all institutions and organizations that have been approached by the committee. The exhibition will attempt to show the facts regarding the disease and its distribution, and from this the problem to be met can easily be inferred. What is

being done and what ought to be done will also be demonstrated. Exhibits of sanatoria, consisting of elaborate models, photographs and charts will come from points as widely separated as California and Nova Scotia, Ontario and Arizona. Large maps showing the relative prevalence of the disease in the different States of the Union are being prepared, and others giving similar information for the chief cities and occupations will also be exhibited. It is natural that New York City should make a strong showing not only by reason of the leading position which she has taken in the municipal fight against tuberculosis, but on account of the local interest in the exhibition. The Department of Health will be extensively represented by a demonstration of its well-known campaign. The Tenement House Department will also co-operate and is planning what promises to be one of the most interesting single features. Accurate copies of tenement-house rooms under both the old and newer conditions are to be prepared. Local public institutions and hospitals are also making elaborate preparations. Arrangements have been completed with the authorities of the tuberculosis exposition which is now being held in Paris by which selected material representing European work of particular value will be shipped to New York in time for use. In order to extend further the usefulness of the exhibition, the committee is planning a number of public meetings to be held during its progress, at which speakers of authority will bring out special points of interest. The Mayor and other city officials have been invited to be present at the opening of the exhibition, and everything points toward an enthusiastic co-operation on the part of those who are leading the fight against tuberculosis. It is recognized that the real value of an undertaking such as this depends entirely upon the publicity which attends it and the consequent public interest which can be aroused. It is hoped that the press will join with those behind the movement in emphasizing the importance of the problem and aid the organizations concerned in bringing every resident, not only of New York, but of the United States, to know at least the main facts regarding the disease and its danger, and the simple means of prevention.

The Work of the Rockefeller Institute.—The new building for the laboratory and offices of the Rockefeller Institute for Medical Research is rapidly nearing completion, and it is now hoped to have it opened for occupancy in December, or at the latest, early in January. Situated at the foot of East Sixty-sixth Street, on a high bluff overlooking the East River, it stands in a plot of twenty-six lots, on which are also an animal house and a power house. All the buildings are of gray brick, with limestone trimmings. Work on the structure was begun in July, 1904, on contracts aggregating about \$320,000. The laboratory building faces Sixty-sixth Street, that street having been closed east of Avenue A by an act of the legislature after the site was acquired, as the plot extends to the river. This building measures 60 by 150 feet, and is five stories in height, with a basement. The first story contains the administration offices, library and assembly hall, while the second is planned to accommodate the physiological-chemical and pharmacological laboratories. Above the second floor the building is to be devoted to experimental pathology and bacteriology. The fifth story provides space for photo-microg-

raphy and general photography. In the artists' rooms are accommodations for an assistant who may need to pass the night at the laboratory, in order to follow experiments, and an undivided space for future developments. A somewhat novel feature of the second story will be a very large room, with a hard cement floor, containing all the machinery of the laboratory, such as presses, a centrifugal machine, distilling apparatus, etc. This is an adaptation from the Pasteur Institute, in Paris, the object being to have all the machinery under one man's eye. The entire roof will be covered by a house for small animals and birds, suitably partitioned and sheathed with copper. A covered way, of brick and limestone, connects the main building with the animal house on the grounds, which is 30 by 60 feet, and is two stories high. Various animals, from horses to rabbits and guinea-pigs, will be kept for biological purposes in the study of diseases or in preparing antidotes to them. The houses for them are built with attention to the comfort and hygienic maintenance of the animals. In the interior of the laboratory building the floors are of terrazo, or vari-colored gravel laid in cement, having a mosaic effect in light tint. The walls are finished in hard plaster, with oak trimmings, painted in different colors, according to the uses of the rooms. There are iron staircases and two elevators. It is claimed that the building is fireproof. The architects are Shepley, Rutan & Coolidge, of Boston, who were chosen because they had worked out the plans of the new Harvard Medical School buildings, which contain several laboratories of modern design.

Beginnings of the Institution.—The work of the Rockefeller Institute, founded by John D. Rockefeller, in 1901, has been conducted so quietly, no publicity having been sought for it outside the medical profession, that but few laymen have been aware of its nature or its importance. The institution is the first and only one of its kind in the United States. Somewhat similar in scope are the Pasteur Institute in Paris, the Institute for Infectious Diseases in Berlin, founded for Professor Koch, with other institutes in Germany of more or less consequence; the Imperial Institute in St. Petersburg, and the Lister Institute of Preventive Medicine, formerly the Jenner Institute, in London. Administration of the affairs of the Rockefeller Institute is vested in a board of seven directors, as follows: Dr. William H. Welch, of Baltimore, president; Dr. T. Mitchell Prudden, of New York, vice-president; Dr. L. Emmett Holt, of New York, secretary; Dr. Christian A. Herter, of New York, treasurer; Dr. Simon Flexner, of New York, director of laboratories; Dr. Hermann M. Biggs, of New York, and Dr. Theobald Smith, of Boston. These officers and directors have served from the beginning. One of the directors has said with reference to the work of the Institute: "It is commonly supposed by those whose attention has not been specially directed to the matter, that improvements in medicine are the results of chemical work and observation, carried on by physicians in the regular course of their practice. This is not the case. The great agency in advancing modern medicine to its present stage has been research work in laboratories. The general public has no conception of the wide-reaching effect which may be produced by a single discovery thus made. For instance, Koch's discovery of the tubercle bacillus, in showing that a single disease could be traced back to one

specific cause, has given rise to our whole system of bacteriology. It was for the purpose of furnishing the opportunity for attacking some of the numberless unsolved problems in medicine that this institute was started. Mr. Rockefeller might have equipped it with a great amount of money at the beginning, and let the managers do the rest; but that is not his way of doing things. The Board of Directors of the Institute having been organized and incorporated in May, 1901, he gave to it the sum of \$200,000, to be drawn upon as desired for ten years. To obtain immediate results, the board established, in the first year, some fifteen or twenty fellowships, yielding from \$500 to \$1,000 apiece, in various laboratories in this country, and also sent several to Europe, to pursue investigations there. Promising men were, of course, selected, who showed taste and aptitude for research work. At the end of the first year the board submitted a report to Mr. Rockefeller of what had been done, with the recommendation that the Institute should have a permanent central home, where all the investigators could get together and devote their time to research work entirely. It was unanimously concluded by the directors that the best place for such a center was New York City. Mr. Rockefeller approved the preliminary report and general scheme advocated, and then, in 1902, made an additional gift of \$1,000,000 to carry on the work for ten years. Part of this sum was to be used for the purchase of real estate and the erection of a building suitable to the needs of the institution. We looked over the whole city for a desirable site. Finally Mr. Rockefeller bought the old Schermerhorn farm, extending from Sixty-fourth Street to Sixty-seventh Street, and from Avenue A to the East River, comprising about fifteen acres. The Institute then acquired from him the twenty-six city lots in that tract which constitute the present site, and at once began to form plans for building. Prof. Simon Flexner, of the Board of Directors, who was the head of the pathological laboratories in the University of Pennsylvania, was selected to be the head of the new laboratory to be erected. He passed the following year in Europe, looking over the laboratories there for ideas and suggestions. All the members of the Board of Directors except two have visited European institutions since this work has been in progress, in order to embody in this building the best methods of construction work to be found on the other side. On Dr. Flexner's return, in the fall of 1904, temporary quarters were rented for the Institute at Fiftieth Street and Lexington Avenue, being a part of the old buildings of the Nursery and Child's Hospital. These were fitted up, and have since been occupied as laboratories providing for investigations in experimental pathology, bacteriology and physiology, and in physiological and pathological chemistry. Appointments on the staff of the laboratories are made by the Board of Directors. Although it is believed that its principal work will be done here by its own staff, the Institute will continue, as it has done from the start, to aid important investigation work in other laboratories in this country and in Europe. We had a man from Boston in Manila studying smallpox, and we have had others at the University of San Francisco, in Boston, Philadelphia, Baltimore and various other cities where there are large laboratories. There are now fifteen or twenty men working under the auspices of the Institute outside of

this city. The Board of Directors confers upon the recipients of its grants of money, designed to aid research in medical science, the title of 'Student,' 'Scholar' or 'Fellow' of the Rockefeller Institute, according to the character of the work on which the applicant is engaged and the results achieved. Since many of the recipients or grants are studying under acknowledged authorities in medical research, the titles are sometimes awarded upon the recommendations of the heads of laboratories in which the work is being done."

PHILADELPHIA.

The Philadelphia Obstretfrical Society.—The meeting of this society was held November 2, 1905. The scientific program was opened by Dr. J. S. Randenbush, who read a paper on "Medicine and Means for the Control of Postpartum Hemorrhage." Dr. Wilmer Krusen read a paper on "Embolism Following Abdominal Section." Dr. Wm. R. Nicholson exhibited a new obstretfrical case.

Bucks County Medical Society.—This society met at Doylestown November 2, 1905, and listened to an address by Dr. John B. Deaver. The following officers were elected: President, Dr. Richard C. Foulke, of New Hope, Pa.; vice-president, Dr. Howard Pursell, of Bristol, Pa.; secretary and treasurer, Dr. A. F. Meyers, of Blooming Glen, Pa.; committee on public policy and legislation, Drs. George M. Grim, Ottsville, A. F. Meyers, J. R. Richards, of Fallsington.

College of Physicians of Philadelphia.—The society held its regular meeting Wednesday, November 1, 1905. Dr. William S. Spiller and Dr. Charles H. Frazier read a paper and presented "A Case of Athetosis Treated by Nerve Transplantation." Nine months have elapsed since the operation. Dr. William J. Taylor reported a "Case of Hypernephroma." The patient recovered from the operation but died of an intercurrent disease. Dr. Alfred Gordon read a paper entitled "Auto-Suggestion in Hysteria Apropos of a Case, with Remarks on the So-Called 'Hysterical Insanities.'"

The Medicolegal Society of Philadelphia.—At the regular meeting of this society the following proposition was voted upon: "Resolved, That on and after the first day of January, 1906, no member of this society shall accept the position of club, society, lodge or organization physician, or agree, or continue to do, any medical or surgical work for any club, society, lodge or organization at a less rate than the regular or customary charges for like services rendered by other physicians for patients not members of such club, society, lodge or organization. Also that in no case shall any physician agree to attend the families of the members of such club, society, lodge or organization at half price or a less price than the regular rate. Nothing in this resolution or section of the by-laws shall be construed as preventing any member from attending the worthy poor at a less rate or to give free service to those who are too poor to pay anything, or acting as city, county or town physician, health officer, or under any political appointments. Any violation of this law shall be considered unprofessional conduct and render the member guilty thereof liable to suspension or expulsion from this society, as the society may determine."

CHICAGO.

Gives \$25,000 to Northwestern University.—At the annual meeting of the Board of Trustees of Northwestern College, held November 1, Dr. Albert Goldspohn donated \$25,000 for the erection of a Science Hall. This secures another \$25,000 pledged by An-

drew Carnegie last spring for a college library building.

Harvey Medical School Under Ban.—According to a newspaper dispatch from Milwaukee, dated November 3, after an examination the State Board of Medical Examiners of Wisconsin declares the Harvey Medical College, of Chicago, is not a reputable institution, and that under the reciprocity system in vogue in Wisconsin it cannot recognize its diploma. This finding is embodied in the return of the Board to a judgment entered by Judge Williams in favor of Arthur Budan against the Board. Budan, a graduate of the school, tried to force the State Board to grant him a physician's license.

Investigation of the Pneumococcus.—Answering sundry requests from physicians as to date of publication of the results of Dr. Biehn's investigation of the pneumococcus, the substance of the report is here reprinted: "Rabbits injected intravenously with the sputum of a single healthy person fail to develop pneumonia; injections with the mixed sputa of two or more healthy individuals never fail to produce a typical pneumococcus infection. These results demonstrate, among other things, the wide diffusion of the pneumonia germs; they are present in the secretions of the mouth and throat of the vast majority of healthy individuals, usually lying dormant and inactive. Mixed with the germs of others they develop the disease. The practical point for prevention is the necessity of avoiding all unnecessary contact with a pneumonia patient, and the further necessity, on the part of other members of the family, nurses and attendants, for sterilizing their throats during the course of the disease."

Increase of Diphtheria.—The increase of this disease continues to be most marked in South Chicago, Kensington and Burnside. Of the 113 cases reported during the week, 33 were on the North Side, 52 on the South Side, and only 28 on the vast West Side. Of the 52 cases on the South Side, 24 are in the district south of Eighteenth Street, in the localities above specified. In the remainder of the city there are only four streets on which there are two cases reported. Nevertheless, the fact that sixteen deaths from the disease were reported during the week, only 8 during the previous week, and 10 during the corresponding week of last year, induces the Department of Health to repeat: There are too many unnecessary deaths from diphtheria in Chicago. The bulletin of the Department of Health states that there are two essentials for the successful treatment of diphtheria: First, prompt recognition of the nature of the disease; second, prompt administration of the remedy. The department is prepared and anxious to furnish both these essentials. On these points the Bulletin has repeatedly stated that investigations of deaths from diphtheria show that many of them were due to a deceptive type of the disease. Parents and even some physicians have been deceived when the most malignant form of the disease was present and death has ensued because the administration of antitoxin was thereby delayed. All persons having the care of children should keep in mind that the disease may be in the back part of the nose or in the wind pipe, as well as in the throat where the membrane can be seen. There may be little or no pain or fever, and on the second day the child may seem better. The poison of the disease often causes dullness and stupor. Hoarseness and difficult breathing in-

dicating diphtheria of the wind pipe. The true nature of the disease can only be learned by taking a culture, and when there are so many of these cases present as now, this should never be omitted. Antitoxin should be administered at once in every suspicious throat case; it can do no possible harm in any event; it will certainly prevent death from diphtheria if used within the first forty-eight hours.

CANADA.

A New Dentention Hospital for Quebec.—A modern immigration and dentention hospital to cost \$60,000 is about to be erected by the Canadian Government, to replace the building destroyed by fire a short time ago. It will have accommodation for three or four hundred patients. The Government is also negotiating for adjoining property for the purpose of various hospital dependencies, including an isolation section.

Ontario Mortality Returns for September.—The returns to the Ontario Board of Health for September show that typhoid fever was somewhat more prevalent throughout the province than customary at that season of the year. The reports gave 278 cases with 45 deaths, while for the corresponding month of last year there were 182 cases with 66 deaths reported. Of the 233 deaths from different infectious diseases, consumption caused 153. Of smallpox there were 13 cases with 1 death, and of diphtheria 142 cases and 19 deaths.

British Medical Meeting in Toronto.—Arrangements in connection with the coming annual meeting of the British Medical Association to be held in Toronto from August 21 to 24, 1906, are going on rapidly. Dr. Alex. McPhedran, President of the Canadian Medical Association, has been appointed chairman of the local committee of arrangements. A strong finance committee has been selected with the Hon. Dr. R. A. Pyne as chairman. All the other committees have been arranged and every one is putting forth his best efforts to make the meeting a pronounced success.

Conference Re Toronto General Hospital.—The Board of Trustees of the Toronto General Hospital will shortly meet in conference with representatives of the Ontario Government and representatives of Toronto University to discuss matters in connection with the proposed new General Hospital. At the present time the board is constituted of five members, three being appointees of the Ontario Government, one the Mayor of Toronto and one being elected by the subscribers. The present board have signified their willingness to retire and make way for a newer and larger board. The fund for the new hospital now reaches nearly \$1,000,000.

Appointments to St. Boniface Hospital, Winnipeg.—St. Boniface Hospital, which heretofore has been an open hospital, has lately selected a staff from the physicians of Winnipeg as follows: Consulting physicians, Drs. O'Donnell, J. R. Jones and Wm. Rogers; consulting surgeons, Drs. England, McArthur and R. McKenzie; attending physicians, Drs. Lambert, Nichols, Chas. McKenzie and Peatman; attending surgeons, Drs. Todd, McKenty and Lehman; attending physicians, children's wards, Drs. Davidson, Dubuc and Slater; isolated hospital for infectious diseases, Drs. Devine, Halpenny, Teney, Gradner and Howden; oculist, Dr. Good; pathologists, Drs. Gordon Bell, McLean and Turnbull. Hon. Dr. O'Donnell was elected chairman of the staff and Dr. Jas. McKenty, secretary.

Typhoid Fever in Winnipeg.—So alarming has the epidemic of typhoid fever been in Winnipeg again this autumn that the Premier of the province requested the chairman of the Provincial Board of

Health, Dr. R. M. Simpson, to make a special examination of the fever districts. His task was completed on October 17, and he found that since August 1 up to the former date there had been 596 cases in the city, with an average of 242 cases per month. More than one half of the cases were in the foreign quarter of the city. Dr. Simpson holds the presence of eight thousand box closets to be contributory to the prevalence of the disease. He further suggests that the city supervise the installing of sanitary systems in all houses, a visible water supply, Winnipeg's water being derived from artesian wells, and a health board of physicians, freed from all aldermanic influence.

Personals.—Dr. F. Montizambert, Director General of Public Health for the Dominion Government, is on his annual tour of inspection west and is at present in Victoria, B. C.—Dr. C. K. Clarke, superintendent of the Toronto Provincial Hospital for the Insane, on leaving Kingston, where he was superintendent of the Kingston Provincial Hospital, was tendered a banquet by the medical profession and other citizens of Kingston.—Dr. E. S. Turnbull, Branchton, Ont., has been appointed on the staff of the Protestant Provincial Hospital at Verdun, Quebec. Dr. Turnbull was graduated from McGill last year.—Dr. Claude Freeman, formerly medical superintendent of the Hamilton, Ont., City Hospital, sailed from San Francisco on November 4 for Chung-King, China, where he has received an appointment to the hospital of that city.—Dr. George W. Ross, Toronto, son of the former Premier of Ontario, the Hon. G. W. Ross, has been appointed pathologist and registrar to the Victoria Park Hospital, London, England.—Dr. J. M. Lenney, Winnipeg, has been appointed divisional surgeon to the Grand Trunk Pacific at that city.

GENERAL.

Antivivisection Again.—A petition is being circulated in Massachusetts relative to a bill to be introduced in the legislature of that State this coming winter, prohibiting briefly and simply "all experiments under any circumstances and for any purpose whatsoever upon dogs and cats."

Complaint Against Cuba.—Senator Cullom, of Illinois, chairman of the Committee on Foreign Relations, called on President Roosevelt Monday morning to lodge a complaint against the Cuban Government. The complaint is made on the score that the Cubans have not kept their agreement under the Platt amendment regarding measures of good sanitation. As a result of neglect, the Senator says, an epidemic of yellow fever is threatened, although the scourge has been kept off for several years through the rigid system of sanitation introduced and maintained during the American régime. Mr. Cullom said Monday morning that he thought the United States Government should protest under the terms of the Platt amendment. Not a single sewer, he declared, has been built since Havana was turned over to the Cuban authorities, and filth is gradually accumulating throughout the city.

Hospital Interne Wanted for Panama.—The United States Civil Service Commission announces an examination on November 29 to 30, 1905, at the places mentioned in the accompanying list, to secure eligibles from which to make certification to fill vacancies in the position of hospital interne under the Isthmian Canal Commission on the Isthmus of Panama. Two days will be required for this examination. As an insufficient number of eligibles resulted from the examination held on January 18 for this position, qualified persons are urged to enter this examination. Applicants should at

once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in an accompanying list, for application Form 1312. The medical certificate in Form 1312 must be filled in by a reputable practising physician. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application, namely, "Hospital interne (male). Examination for Panama Canal. November 29 to 30, 1905."

A Clean Milk Movement in Los Angeles.—The Board of Health of Los Angeles, Cal., and the city health officer recently inaugurated a crusade for pure milk. The members of the board, through personal visitation of dairies within and outside the city limits, acquired a first-hand knowledge of the situation that enabled them to effectively squelch the offending dairymen and their political backers in an attempt put forward to have the requirements and penalties laid down by the board set aside. From a number of analyses by the city bacteriologist, the board has decided that a dairy selling milk containing more than 500,000 colonies of bacteria to the cubic centimeter shall be the subject of investigation—surely, by the widest stretching of official amiability, no unreasonable standard. The situation is reviewed by the *California Medical and Surgical Reporter* in a recent issue, as follows: There can be little doubt but that a large proportion of the vast number of digestive diseases among infants, with the many fatalities therefrom, can be traced to an impure milk supply. This being the case, it certainly becomes the duty of the municipality to safeguard the lives of the children of the citizens. The Board of Health and the health department officials deserve the hearty cooperation of all citizens in this much needed work. Medical men, knowing the potent influence of an impure milk supply in inducing disease among infants, are especially obligated to lend the health officials of Los Angeles their cordial cooperation and aid. Another problem, by the way, to which the Los Angeles Company Medical Association might give some attention.

The "Patent Medicine" Crusade.—The *Evening Post*, under this editorial heading, says, in part: "In order to reduce the 'patent' proprietary medicine business to its legitimate field, it is necessary to accomplish only two things: First, the public must be made to understand what these 'remedies' are in themselves, and, second, legislators and well-meaning citizens generally must be brought to realize that the 'demonstrations of popular sentiment' in favor of these nostrums are purely fictitious, being inspired solely by the manufacturers themselves and those who profit by the sales. The past year—the most harassing, perhaps, that the proprietors of the celebrated cure-alls have ever passed through—has seen so much accomplished by educational work along both of these lines that one might almost declare the whole face of the question to be changed. Official agencies have been more than usually active, too, in the past year. The Commissioner of Internal Revenue's recent ruling, requiring the payment of a retail liquor dealer's tax for the sale of the highly alcoholic preparations, is important, as also the action of the Postoffice Department in withholding the use of the mails from actually fraudulent medicine concerns. Finally, one State has at last enacted the law requiring the publication of formulæ on all packages or bottles of proprietary remedies. This law, which ought to be in force throughout the country, has thus far been fought successfully by the 'patent-medicine' interests

everywhere except in North Dakota, which State is now entitled to head a roll of honor. As to the means by which an apparent expression of public sentiment is secured adverse to these salutary statutes, the article on 'The Patent Medicine Conspiracy,' in the current issue of *Collier's*, presents a greater amount of detailed information than has ever before been brought together. The writer of the article referred to shows facsimiles of the advertising contracts of various leading companies. This is one clause found in substance in the advertising contracts of all the leading companies: 'It is mutually agreed that this contract is void, if any law is enacted by your State restricting or prohibiting the manufacture or sale of proprietary medicines.' And the second is like unto it: 'It is agreed that the Munyon's H. H. Remedy Co. may cancel this contract pro rata in case advertisements are published in this paper in which their products are offered with a view to substitution or other harmful motive; also, in case any matter otherwise detrimental to the Munyon's H. H. Remedy Co.'s interests is permitted to appear in the reading columns or elsewhere in this paper.' These are brief clauses, but they are potent and need no comment."

OBITUARY.

Dr. FREDERICK TEMPLETON ZABRISKIE died in the apartments of his father, Simeon T. Zabriskie, on West Forty-sixth Street, New York. He was born in Hackensack, N. J., thirty-four years ago, and after being graduated from Columbia College entered the College of Physicians and Surgeons. He was later connected with St. Luke's Hospital, the Post-Graduate, and the Polyclinic Hospitals, and was on the staff of the House of Mercy, of Pittsfield, in which he became interested through his connection with the Lenox colony.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Twenty-second Annual Meeting, held at the Academy of Medicine, New York City, October 16, 17, 18 and 19, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

THIRD DAY—OCTOBER 18TH (Continued).

(Continued from Page 911.)

Cancer and Parasites.—Dr. Gaylord said that if cancer is communicable, why should it not be parasitic in origin? If it is conveyed through the air or clings to houses, is it the epithelial cells that are thus carried? With regard to the X-rays, in animals cured by this means no unusual immunity is produced. With regard to Orth's supposed opposition to the parasitic theory, Dr. Gaylord considers himself in a position to say definitely that Orth's only desire is to insist that as yet there is not proof enough. His leanings, however, are rather toward a parasitic than non-parasitic origin of cancer. It is evident from many observations that it is not the epithelial cells themselves that overgrow, but that there is some other factor causing the overgrowth. This unknown factor must be considered as the problem of most interest, and there is no doubt that many recent observations upon animals point even more clearly than before to the parasitic nature of this mysterious agent.

Coincidence Not Conveyance.—Dr. James J. Walsh said that cancer is too common and the cases of supposed communication entirely too infrequent to argue the communicability of cancer. According

to the last census, nearly one in thirty of all the deaths in this country took place from cancer in 1900. This gives too large a range of possible coincidence to think of communication. Cancer would be even more frequent if it were communicable. With regard to a certain set of cancer cases, Dr. Walsh's personal experience is against possible communication. Nathaniel Hawthorne's daughter has, for some seven years now, with a little group of women, been taking care of the cancer poor of New York City. In seven years nearly 400 incurable cases have been kept until their deaths. No cases are taken that can pay. In order that these poor people shall not feel that they produce any sense of repulsion, this little group of women takes more intimate care of them, under their religious feelings, than would probably otherwise be the case. Here are multiple opportunities, therefore, for cancer contagion of the kind that have been mentioned as supporting the opposite thesis, the sort of association that only would occur among near relatives, and yet no cancer communication has taken place.

Communicability of Tuberculosis and Cancer.—Dr. Lloyd said, in closing the discussion, that to declare against cancer communicability is to harbor many evil ideas and consider that no progress in medicine can be made. Because cancer was not thought communicable, therefore it will not be found to be so. It must not be forgotten that this same notion prevailed with regard to tuberculosis before our present knowledge. With regard to parasites in cancer, Dr. Lloyd prefers to straddle the question because it is not as yet definitely decided. As for radium, some good results have been reported, but nothing definite can be said, and the matter is *sub judice*.

Mediastinal Cancer.—Dr. William Francis Campbell, of Brooklyn, said that in April, 1905, there was referred to him for operation a farmer, twenty-one years old, with a diagnosis of goiter. He gave the following history: Always enjoyed good health; no previous illness till two months ago when the first symptoms noticed were hoarseness and loss of voice. This continued till one month later when a swelling appeared in the region of the thyroid. His breathing became troublesome; he could not sleep lying down; his appetite was very poor, and it hurt him to swallow. This was the statement of the case from the patient's standpoint, presenting a sequence of symptoms as follows: Loss of voice, swelling just above sternal notch, embarrassment of respiration and difficult deglutition. The point of interest is the sequence of the symptoms. The first symptom was loss of voice; this led to doubt of the previous diagnosis, for in goiter loss of voice is a late symptom, not an early one; in goiter the appearance of the tumor is first and loss of voice secondary; here the loss of voice was first, and the appearance of the tumor secondary. Convinced that the explanation of these symptoms would be found elsewhere than in the thyroid, a more extended examination gave the following findings: The patient presented a good muscular frame, skin pale, breathing labored, voice hoarse, lips slightly cyanotic, right pupil dilated, left normal, both react to light, sclera pale, Mouth, pharynx and spine negative. Projecting above the suprasternal notch is a tumor half the size of a lemon, lying between the two sternomastoid muscles and in front of the thyroid cartilage, pushing the larynx and hyoid bone upward and backward, evidently not attached to the larynx or involving the thyroid gland. It is moderately firm on

pressure, non-pulsating, gives no thrill or murmur, and no tracheal tug on elevation of the larynx. The cervical and submaxillary glands on the right side are not enlarged, but the glands in the left lower cervical region are enlarged to the size of a small almond. The tumor is dull on percussion; this dullness is continuous, more marked over the first piece of the sternum, and is continuous with heart dullness, but this appears to be more marked in the upper half of the cardiac area. There is no pulsation, thrill or murmur over the first piece of the sternum. The left border of the heart percusses one-half inch to the right of the nipple line. The sounds at the apex are moderately distinct; no murmurs are heard at this point. There is marked dullness in the right of the sternum in the second space for two inches; this continues down as far as the fifth space where it becomes continuous with liver dullness. Over the upper half of the heart the sounds are very faint, and no murmurs are heard. Both radial pulses are synchronous, but the left is a little smaller than the right; over both lungs the breathing is feeble, inspiration is shallow and quick. Loud bronchial sounds are transmitted through the lungs.

Symptoms and Fatal Tissue.—Paroxysms of coughing occur every few minutes, and with each effort one or two ounces of mucopurulent material is ejected. On the second night after entering the hospital he was sitting, as usual, by the open window. This was his most comfortable method of resting. He arose to get something; after walking several steps fell and expired. Autopsy showed a tumor of the mediastinum, involving the pericardium and extending into the sac. It extended backward and upward into the neck, and was about the size of the head of a seven months fetus. Pathologist reported it a lymphosarcoma.

Medical and Social Mission of the Tuberculosis Sanitarium.—Dr. S. A. Knopf dwelt especially on the education in medical prophylaxis and the social advantages of sanatoria for tuberculous patients. The regular life constitutes an excellent discipline. The insistence that alcohol is not good for tuberculosis reduces the tendency to alcoholism, which sometimes develops among these cases and lessens the excuses for taking it. Association, properly regulated, constitutes an education in good manners. At many foreign sanatoria the university teacher comes to lecture before the patients once or more during the week. At Trudeau's sanatorium the *Journal of Outdoor Life* is published, and a botany club has come into existence, both of which give intellectual occupation to patients and save the tedium of the time. In German sanatoria singing lessons are given, and singing in the open air is most helpful. Besides, there is an excellent medical training in sanatoria for physicians and nurses. When the time comes that tuberculosis shall be so lessened that so many sanatoria will not be needed they will make excellent homes for the aged, who will be more numerous because they will have been saved from tuberculosis.

The Radical Removal of Cancer of the Stomach.—A paper by William J. Mayo, A.M., M.D., and Charles H. Mayo, A.M., M.D., Surgeons to St. Mary's Hospital, Rochester, Minn., was read by Dr. William J. Mayo, the President of the American Medical Association.

Curability.—There is no truthfully recorded example of a cancer of the stomach cured by medical means, yet these cases are treated by medical men,

are sent into the medical wards and subjected to treatment which must result in 100 per cent. mortality. Cancer of the stomach is the most frequent form found in the human body, at least 30 per cent. of the total, a tremendous sacrifice of human life almost without effort at cure. The past high mortality of radical excision and the difficulty of early diagnosis are largely to blame for this state of affairs. Since 1900 great improvement in technic has lowered the mortality to less than 10 per cent., and exploratory incision in the suspicious cases gives the diagnosis.

Report of 81 Gastric Resections, with Mortality of 14½ per cent., including Early Operations.—Thirty-four patients operated upon in the last thirty months with a mortality of 8 per cent., 25 consecutive with 1 death, 4 per cent. As to relief, 11 operated upon too recently to be of value as to cure. Five failed to live six months, 38 lived six months to a year, and 24 are alive now; 21 from one to two years, and 13 are alive at the present time. Ten of these have lived from two to three years, 4 from three to four years and 3 alive longer; as only 16 were operated upon more than three years ago, this gives 25 per cent. living three years or more. One is alive and well four years and ten months after the operation.

Clinical History and Symptoms of Most Value in Early Diagnosis.—Traces of blood and reduction of hydrochloric acid of some importance. History of past ulcer is not against later diagnosis of cancer, as ulcer often degenerates into cancer. Twenty-five per cent. of our last 24 cases show this. The presence of a tumor is not necessarily a contra-indication to operation. A small movable growth in the pyloric end is a rather favorable type, as it gives early obstruction. Seventy per cent. are in the operable (pyloric) end of the stomach. All well known means of diagnosis merely give rise to a suspicion, and if we cannot disprove it, exploratory incision is called for.

Early Operations for Cancer of the Stomach.—Dr. John B. Deaver, of Philadelphia, who opened the discussion on Dr. Mayo's paper, said that if more internists saw operations upon cancer they would advise operation sooner than they do. The ordinary methods of diagnosis are not especially effective or certain for early diagnosis, though the absence of hyperleucocytosis after digestion and the presence of lactic acid are helpful. Careful examination of the vomitus may be pathognomonic. Indigestion is not always a surgical disease; neither is it always a medical disease. Persistent symptoms from the gastro-intestinal tract mean serious involvement of the gall-bladder, the pancreas and the stomach, in nearly every case. It is important then for the physician to insist on consultation with the surgeon, if the symptoms persist after careful treatment for some time.

Difficulty of Early Diagnosis.—Dr. Willy Meyer, of New York, said that waiting for the tumor to make its appearance in gastric cancer is as bad as waiting for the tumor in appendicitis. The waiting is too long. An exploratory incision should be made early in doubtful cases. The scales are an extremely important diagnostic help, and any serious decrease in weight should be looked to. Dr. Meyer has done five gastrectomies with four recoveries, the fifth case being in a man of very poor health because of complicating specific disease. Two of the patients are alive after two years. Posterior carcinoma of the

stomach often induces the surgeon to wait too long. Even an anesthetic may not enable him to palpate these. An anesthetic should always be used in doubtful cases.

Radical Operation.—Dr. Mayo, on closing the discussion, said that the glands likely to be affected by stomach cancer are as well known and as definitely located as those of the breast. In most cases they could be removed without danger. His method is to do gastrectomy by tying first the gastric artery and the superior pyloric on the upper curvature. He then goes in behind from above, and avoids the danger of injuring the ileocolic artery, injury to which may result in gangrene of the transverse colon. If the operation is done with care, the immediate danger is very little, and the results remarkable.

Cancer of Intestinal Tract.—Dr. James P. Tuttle, of New York, said that cancer of the alimentary tract represents over 50 per cent. of all cancer. It used to be considered as most likely to develop in middle life and seldom under forty years. Now it is known to occur much earlier at times, and Dr. Tuttle saw a cancer of the rectum not long since in a new-born child. Often in these cases there is a little temperature and some tension of the rectus muscle, and while the surgeon is waiting for complete quiescence to do an interval operation, the cancer progresses too far for successful removal. Of the cancer of the lower intestinal tract the most important sign is unsatisfied movements of the bowels. There is a sensation of unfinished business. Sometimes this symptom alone is sufficient to lead to investigation which discloses the cancer. Chronic constipation should not be treated for a considerable period, especially if it proves obstinate, without suspicion of cancer and careful investigation along that line. In cancer of the intestines, where the new growth cannot be removed, the fetal current may be switched round the obstructions without the necessity for the inconvenience of an artificial anus. In inoperable cancer of the rectum, curettage followed by the cautery gives comfort and prolongs the patient's life.

High Intestinal Cancer More Dangerous.—In the discussion Dr. Arpad G. Gerster said that as to metastases cancer of the intestine is worse the higher up it is. Rectal cancer shares with cancers of the lip the property of not being very malignant. Unfortunately, the symptoms are often very late. The incomplete healing of evacuation is an extremely important diagnostic sign. For the discovery of many cancers of the intestine, anesthesia after thorough purgation is the only diagnostic sign short of exploratory laparotomy. At times the malignant stricture is only microscopic, and there would be difficulty in finding it even at the autopsy table.

Thyroids Combined with X-rays.—Dr. Carl am Ende presented a patient who had been treated for cancer by the administration of thyroids combined with X-rays, in whom an excellent result had been obtained.

Cancer of the Uterus.—In the absence of Dr. George M. Johnston, of Richmond, Va., Dr. Charles P. Noble, of Philadelphia, read a paper on "Cancer of the Uterus." He called attention to the fact that even on the five-year basis Dr. Byrne, of Brooklyn, had succeeded in saving 19 per cent. of his patients by amputation of the cervix and burning out of the malignant material. The radical method, so much advocated in Germany for a while, of removing not

any the uterus, but considerable tissue alongside and all the glands involved as far as possible, did not give good results and is not worth considering as routine treatment. In one-half of the cases the lower glands are involved, but many of them could not be removed, because of their position along arteries.

The attempts to eradicate all cancer tissue are frustrated by accidents to ureter and bladder, which will occur. The best method seems to be the use of the cautery after the fashion of Dr. Byrne, of Brooklyn.

Education and the Recognition of Cancer.—Dr. Federick, of Buffalo, said that for better results what was needed now is that the general practitioner

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*Thirty-first Annual Meeting, held at Indianapolis, Ind.,
October 10, 11 and 12, 1905.*

(Continued from Page 863.)

General Blood Poisoning Emanating from the Nose and Pharynx.—Dr. J. Holinger, of Chicago, stated that micro-organisms of the nose and pharynx were formerly considered harmless. A great many diseases could be directly traced to them. Fatal cases of blood poisoning occurred, but were not very frequent. This statement in the paper was substantiated by the histories of two cases. The speaker said that Dr. Schwarzenbach had shown that a number of general diseases, such as acute

rhinitis, adenoiditis, etc., could be traced to the nose and pharynx. He said that in the case of a patient with adenoiditis, the adenoids were removed, and the patient recovered. He said that in the case of a patient with adenoiditis, the adenoids were removed, and the patient recovered.

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touched on colotomy as the operation of necessity rather than the operation of choice, and urged an examination in all cases where the rectum was involved, as in cases of hemorrhoids, where there were bloody stools, where there was painful defecation, and where there was constipation, and advised a microscopical examination in all cases where the neoplasm was developed. The author showed that the extirpation of a part or the whole of the rectum by the Kraske method was the ideal operation, and should be practised only by those who have had experience in capital operations.

The Surgical Management of Injuries of Peritoneal Viscera Resulting from Violence Applied to the Abdominal Wall.—Dr. John Young Brown, of St. Louis, Mo., called attention to the dismal mortality in such cases, and emphasized the importance of their early diagnosis and prompt surgical treatment. He reported a series of six cases which had come under his personal care during the past eighteen months, in all of which abdominal resection was done. Of the six cases, one recovered and five died. An analysis of the cases led to one conclusion, namely, the importance of early diagnosis and prompt surgical treatment by abdominal section in all cases of abdominal contusion, in which there were present the slightest symptoms pertaining to injury to peritoneal viscera. If one waited until the classical symptoms of peritonitis were present surgery promised little.

Intraperitoneal Tuberculosis.—Dr. F. F. Lawrence, of Columbus, Ohio, read a paper on this subject, in which he drew the following conclusions: (1) Intraperitoneal tuberculosis is frequently a local disease. (2) It probably occurs much more frequently in the female than in the male. (3) In a large majority of cases it is primarily visceral, and the general peritoneum is secondarily involved. (4) The surgical treatment is rational, sometimes agreeably surprising in results, and again bitterly disappointing. (5) In this, as in many other surgical conditions, early diagnosis and early operation will bring more certain results. (6) In this condition the greatest obstacle to overcome is the idea that it is a secondary condition. (7) No case of intraperitoneal tuberculosis should be denied the benefits of operation, no matter how extensive, so long as there is no positive pulmonary or pleuritic involvement, for the reason that some apparently hopeless cases fully recover. (8) When there is a tuberculous peritonitis, a sequel of tubercular tubes, ovaries or appendix, the primary focus should always be removed. (9) In these tuberculous cases the mesenteric glands have not been found frequently involved, and when they are operation accomplishes very little good. (10) In tubercle of tubes and ovaries the adhesions are usually firm, sometimes, though not usually, very vascular and not infrequently involve loops of the small intestine; hence the greatest care is necessary to avoid serious injury to bowel and at the same time separate completely all adherent surfaces and provide complete drainage. (11) Drainage is the great factor in recovery, when properly carried out.

Pyloroplasty with the McGraw Ligature.—Dr. J. Henry Carstens, of Detroit, Mich., said that many cases with disturbances of digestion could not be diagnosed or relieved by medication. These should be subjected to an exploratory celiotomy. Gastro-enterologists should not treat patients for months and years if they could not make a positive

diagnosis or cure the patient. After reasonable efforts the patient should be sent to the surgeon for relief. The McGraw ligature was a valuable means of relieving stricture at the pylorus and the resulting dilatation of the stomach. This method of operating was easy and quick; the danger was very small, and the operation was preferable to those heretofore used in benign contractions at the pylorus. It was a great deal better than gastroenterostomy, as one restored as nearly as possible the normal condition. Quite a number of gastroenterostomies had been reported, with a most gratifying result in some of the cases, but the difficulties encountered, the trouble with the vicious circle frequently called for a double operation. The McGraw elastic ligature method should be the operation of choice. Dr. Carstens concluded by saying that (1) many stomach troubles were due to mechanical means. (2) These cases could only be relieved by surgery. (3) Many cases could not be properly diagnosed in the present state of our knowledge. (4) Obscure cases that had been subjected to various modes of treatment without benefit should receive the benefit of an exploratory celiotomy.

Ovarian Cystoma.—Dr. L. P. Luckett, of Terre Haute, Ind., reported a case of ovarian cystoma upon which he had operated. The tumor originated from the left ovary, was attached by a broad pedicle which was tied off in sections. The uterus and right ovary were found to be normal. The fluid and tumor were estimated to have weighed between seventy and eighty pounds. The patient made an excellent recovery.

Surgical Treatment of Nephritis.—Dr. Alexander Hugh Ferguson, of Chicago, presented a further report on the surgical treatment of this disease. He reported seven cases upon which he had operated, with two deaths:

Case I.—Capsulectomy and nephrotomy; return of symptoms; no second operation; still improved.

Case II.—Chronic nephritis and pregnancy; unilateral capsulectomy and nephrotomy, with recovery.

Case III.—Chronic painful left interstitial nephritis; capsulectomy and nephrotomy, followed by complete recovery.

Case IV.—Nephritis; unilateral capsulectomy and nephrotomy, with recovery.

Case V.—Nephritis; unilateral capsulectomy and nephrotomy; death.

Case VI.—Bilateral nephritis; bilateral capsulectomy; unilateral nephrotomy; multiple punctures on the other side; death.

Case VII.—Double recapsulectomy; multiple punctures; patient progressing toward recovery.

Dr. Maurice J. Rosenthal, of Fort Wayne, Ind., discussed the subject of closure of uretero- and vesicovaginal fistulae, and reported a case. The author concluded by saying that a considerable area of the scar tissue and vaginal mucosa might be inverted into the bladder without producing ill effect. Ureteral fistula embedded in scar tissue might be inverted into the bladder and continue to discharge its urine without becoming stenosed. Even large vaginal fistulae, where part of the bladder walls were lost in scar tissue from a previous hysterectomy, might be successfully operated by the operation of denudation and suture through the vagina without disturbing the relations of the bladder or any adhesions of pelvic viscera which might have formed in the scar.

Sprained Ankle.—Dr. Robert Carothers, of Cincinnati, Ohio, read a paper on this subject, in which he drew the following conclusions: (1) No one is exempt from a sprained ankle, although some are more prone to it than others. (2) That in severity a sprained ankle will range from a trivial accident to one of extreme severity and everlasting. (3) That the outer side more often than the inner side of the ankle is the seat of trouble. (4) That the diagnosis which is ordinarily made with ease is at times made with difficulty, and occasionally an X-ray examination is required to make the diagnosis certain. (5) That the treatment by immobilization with a plaster-of-Paris cast is unsatisfactory and at times injurious. (6) That the treatment instituted by Cotter, the so-called adhesive plaster strappings, advising and urging the patient to walk on the injured foot, the early removal of these straps, followed by massage, gives the most satisfactory and best results. (7) That the old cases are to be under anesthesia, converted into acute sprains and treated in the same manner.

Appendicitis.—Dr. R. E. Haughton, of Richmond, Ind., followed with a paper on the history, differential diagnosis, pathology and etiology, medical and surgical treatment of this disease. He presented a brief history and plea for an abatement of the use of the knife in place of treatment by remedies, in view of the statistics and results.

Shall the Laity or the Profession be Responsible for the Death-Rate in Appendicitis?—Dr. J. C. O'Day, of Oil City, Pa., said that every physician when confronted with a case of appendicitis should frankly tell the patient the nature of his trouble; explain to him honestly and candidly the disposition of his disease; that no one could tell what an inflamed appendix would do, and that there was no safety till the offending organ had been removed. If the patient then decided to defer operation he, not the surgeon, should be responsible. If this were done he thought we would hear no more complaints of, Why did not the physician advise operation before it was too late?

Sarcoma of the Anterior Segment of the Globe.—Dr. O. Tydings, of Piqua, Ohio, presented a brief history of a patient upon whom he had operated for the removal of melano-sarcoma of the anterior segment of the globe. The diagnosis of melano-sarcoma was confirmed by others. Five days after the removal of the tumor the patient dropped out of sight and the speaker did not see him again until the following August. There was no recurrence; the cicatrix was smooth; the lone pigmented spot not larger than a pinpoint, which the author took to be the remains of an old hernia of the iris, was still present, but absolutely quiescent. The patient's vision, which, when he first saw him, was right eye, 20/40, and when operated 20/200; left 20/30, was now 20/20 in each eye. So far as the author had been able to examine authorities, the case stood alone. Primary melano-sarcoma of the cornea is rare. Nine cases had been reported of sarcoma of the cornea by different authorities. None of these cases, however, according to an English authority, was above suspicion.

Three Cases of Extraperitoneal Rupture of the Bladder Complicating Fracture of the Pelvis, with Recovery.—Dr. Joseph Rilus Eastman, of Indianapolis, said that injuries of the pelvic bones were attended with more or less risk to life, which did not ensue solely from the damage done to the bones

themselves, but arose usually from the injuries done to the viscera of the region involved. Formerly death occurred in a large percentage of cases of rupture of the bladder. The mortality was naturally much higher in those cases in which a tear of the peritoneum made possible the entrance of urine into the peritoneal cavity. However, extravasation of urine through the pelvic connective tissue in cases of purely extraperitoneal bladder rupture also formerly caused a high mortality rate. This mortality rate had been decidedly decreased by modern methods of dealing with shock and free and rational bladder drainage. The immediate and characteristic symptoms of the injury were intense pain in the abdomen, collapse and great irritation of the urinary reflex, with ineffectual attempts to void urine. Inability to void the urine was usually present, whether the peritoneum was torn or not. If the peritoneum was injured peritonitis of the sthenic type developed duly. As the injury usually occurred while the bladder was full, an area of dullness and tenderness was to be found over the bladder, extending irregularly beyond the normal limitations of bladder dullness, and a large amount of bloody urine might usually be withdrawn by catheterization. As to the diagnosis of fracture of the pelvis itself, this could occasionally be made visually. Usually, however, the surgeon must depend upon his senses of sight, touch, and hearing for the well-known signs of fracture, deformity, abnormal mobility and crepitation. The deformity was usually not pronounced. In the three cases described by the author the treatment consisted in combating shock, chiefly with normal salt solution and adrenalin, in the removal of clot, suture of the rent in the bladder, appropriate bladder drainage, rest and the application of a bandage in such a manner as to prevent movement of the pieces of bone which were broken off. The following papers were also read: "Note on Bone Tuberculosis, with Report of a Case," by Dr. W. W. Vinnedge, Lafayette, Ind.; "Post-Operative Acute Dilatation of the Stomach, with Report of a Case Following Nephropexy," by Dr. A. E. Halstead, Chicago; "Treatment of Tuberculosis of the Cervical Lymphatics," by Dr. H. C. Sharp, Jeffersonville, Ind.; "Visceral Ptosis; Its Surgery," by Dr. Earl Harlan, Cincinnati, Ohio; "The After-Treatment of Gastroenterostomy," by Dr. Charles A. L. Reed, Cincinnati, Ohio; "Systs of the Mesentery, with Report of a Case," by Dr. L. G. Bowers, Dayton, Ohio; "Perforating Ulcers of the Duodenum, with Report of a Case," by Dr. M. A. Austin, Anderson, Ind.

The following preamble and resolution were unanimously adopted by the Section:

WHEREAS, The medical profession keenly realizes the great and increasing evil, moral, mental and physical, arising out of the support given by the public press to the so-called patent medicine interests, leading to the pernicious practices of self-drugging, narcotic habituation and alcoholic excess; be it

RESOLVED, That the Mississippi Valley Medical Association commends and frankly endorses the attitude adopted by *Collier's Weekly* and the *Ladies' Home Journal* in giving publicity in the articles by Samuel Hopkins Adams, Norman Hapgood and Edward Bok, respectively, to the truthful exposure of the nefarious practices and unscrupulous methods of the so-called patent-medicine concerns.

Officers.—The following officers were elected for the ensuing year: President, Dr. J. Henry Carstens, Detroit, Mich.; First Vice-President, Dr. Joseph

Rilus Eastman, Indianapolis, Ind.; Second Vice-President, Dr. H. H. Grant, Louisville, Ky.; Secretary, Dr. Henry Enos Tuley, Louisville, Ky., re-elected; Treasurer, Dr. S. C. Stanton, Chicago, re-elected.

Hot Springs, Arkansas, was selected as the place for holding the next annual meeting.

MEDICAL SECTION.

What Is the Present Conception of Bright's Disease?—Dr. G. W. McCaskey, of Fort Wayne, Ind., read a paper on this subject, in which he said that the only possible justification for the use of the term was an historical one, and while its meaning must, in a sense, change with the changing views of pathology, yet the primary groundwork, which constituted the historical basis on which it stood, should be kept constantly in view. He presented a brief inquiry as to the character of the group of morbid states and symptoms originally described by Bright. The investigations of Gull and Sutton, on the relation of arteriocalillary fibrosis as a cause of contracted kidney, were the most important steps in broadening the views entertained concerning Bright's disease. They demonstrated the systemic or hematogenous character of one clinical type of the disease, which naturally stimulated thought and investigation with reference to other types along the same line. In spite of the advances in pathological doctrine, in spite of the mutations of opinion and classification, one could not but be impressed by the close resemblance between the views entertained to-day and those of half a century ago concerning what might be called the gross features of Bright's disease. For the purpose of a broad general view of the subject, the author divided the causal conditions into six classes: (1) The acute infections; (2) chronic infections; (3) chemical poisons introduced into the circulation, of which lead may be taken as a type; (4) the influence of cold; (5) the products of perverted gastro-intestinal function, and especially intestinal putrefaction; and (6) the products of perverted metabolism.

The Combined Method of Treatment in the Arrest and Cure of Tuberculosis.—Dr. H. B. Weaver, of Asheville, N. C., stated, among other things, that in order to wage a successful warfare against tuberculosis and prevent its spread, the method which was pointed out by nature consisted in increasing as far as possible the organism. All efforts, therefore, should be directed toward that goal. As only two per cent. of tuberculous patients were treated in sanatoria, that method could not now bring the desired relief. Ninety-eight per cent. of patients were treated in their homes. Therefore, the general practitioner, as remarked by Osler, was, after all, the man behind the gun in this warfare, and to him, and through him, we must look for ultimate success. Tuberculosis would only then be vanquished when it shall have become possible to strengthen the organism and assist with specific powers which will render it immune against the disease.

The Treatment of Tuberculous Pleurisy with Effusion.—Dr. Theodore Potter, of Indianapolis, Ind., submitted for consideration the following propositions: (1) That the profession had gone too far in accepting the general principle and following the general practice that pleural serous effusions, unless they showed a tendency to early absorption, should be removed. (2) Granting that in the majority of such cases pleurisy was the dominant feature and

removal of the fluid the proper procedure, and that such removal would probably tend to arrest the pleural tuberculosis, which was usually present, nevertheless the best results ought to be obtained by dealing with each case upon its own merits. (3) In cases in which the pleurisy was the sole or dominant feature, the removal of the fluid was the proper treatment; and in proportion to the accuracy of differentiation between the pleural and the pulmonary disease would be the promise of good results by removal of an effusion. (4) In cases in which tuberculosis of the lung was evidently or probably the overshadowing feature, a conservative course as regards the removal of a serous effusion was the proper one. In some cases the fluid had best be left to nature to take care of, with the hope that the compression, immobilization and physiological quietude of the tuberculous lung might tend to arrest the disease. In other cases of this type the removal of the fluid should be undertaken only upon a deliberate judgment, after due consideration.

Tuberculosis in General Practice.—Dr. Hugh A. Cowing, of Muncie, Ind., said that in his relation to tuberculosis the general practitioner should exercise great care in physical examination. He should strive to make an early diagnosis. He should carry a life-saving knowledge into the tuberculous home; improve its hygiene, and teach sanitation. He should employ the pure-air treatment. The method would vary to suit the individual case and condition. He should co-operate with health boards, and report cases. He should count the cost before sending the patient to a health resort. He should study health resorts and sanatoriums, and visit them, if possible. He should oppose quack consumption cures and quack doctors who "cure consumption." He should influence the press for sanitation. He should fight patent medicines. He should expose Christian Science and kindred fads that rob the consumptive of his chance for life. He should endeavor to seek legislation for sanitary advancement. He should help to popularize the consumptive sanatorium and health farm. Membership in a society for the prevention of tuberculosis would make the physician's work more effective.

The Management of Neurasthenics.—Dr. H. A. Rodebaugh, of Columbus, Ohio, said that an individual became neurasthenic only after having suffered from some of the psychoneuroses, the latter having been caused by traumatism, by disturbed metabolism, or by peripheral nerve irritation. Heredity, occupation or environment could hardly be considered etiological factors without further specification. Neurasthenia should be considered a mental, rather than a physical, disease. Mental symptoms often persisted after removal of all physical causes, and could only be relieved by psychic treatment. Mental hygiene was both preventive and curative. The neurasthenic should be taught that a healthy mental attitude conduces to bodily health.

Auto-Intoxication.—Dr. D. L. Field, of Jeffersonville, Ind., read a paper on this subject. After referring to the theories and definitions of auto-intoxication by Bouchard and others, the author said that the part played by the intestinal emunctories in the elimination of certain poisonous substances was attested by the commonly fetid stools of persons who frequented post mortems. The fetid character recalled the putrid odor of the emanations from the cadaver. If poisonous products had been absorbed, an effort should be made to destroy them. The liver

had the power of arresting poisons. It withdrew them from the intestines and eliminated or destroyed them. One should, therefore, stimulate its action by proper therapeutic measures. If the poisons had escaped the liver, they should be eliminated by the skin, the lungs, the intestines and the kidneys. If all these attempts failed, one should have recourse to certain antidotes which tended to counteract the physiological effects of the poisons which menaced the system. As a striking example he mentioned the antagonistic properties of poisons in atropine and pilocarpine. The strength of the patient should not be neglected, so that he might have time to eliminate the poisons. Sometimes it was only necessary to keep a patient alive a few minutes more, in order to save him. We could not provide him with radical force, and what was required was active force. Thus one was led to administer stimulants which might awaken the forces remaining latent. Cases were cited in point.

Some Remarks on the Pathology of Epilepsy.—Dr. Marc Ray Hughes, of St. Louis, Mo., showed that each epileptic stage had a distinct pathology, and the entire category for classification of epilepsy, including the psychical varieties, had one common pathology or gross structural change, and that this structural change, whether idiopathic or organic, had to do largely with the movements of the centrifugal and centripetal mental forces as they were found in the psychical equivalent of epilepsy—dual consciousness, obliviousness and allied states of mental eclampsia.

History and Treatment of Epilepsy.—Dr. John W. Selman, of Greenfield, Ind., after recounting at length the history of this disease, said that every physician acknowledged that the great cause of epileptic convulsions was the sudden liberation or explosion of nerve force which swept everything before it. Epilepsy and other diseases might exist together, and for this reason the prognosis and diagnosis were to be carefully formed and given. January 2, 1905, a man, twenty-eight years old, was brought to him, who was having epileptic seizures five and six times a week. There was no aura. Like a flash he was in hard convulsions. The general appearance of the patient indicated great anemia, malnutrition, with diarrhea. The author at once used subcutaneous injections of normal saline solution, with the bitter tonics and arsenic, and at the expiration of ten days a great change in his condition was noticeable, and in three months he returned home apparently well. The causes of epilepsy were toxic, reflex and traumatic. The treatment of the disease was as various as the disease was variable in its forms and phases, and it should in nearly all cases resolve itself into three divisions, consisting in the removal of any exciting cause, in the checking of the convulsive tendency already set up, and in the prevention of any further attacks by suitable drugs or other measures of relief. The treatment was governed largely by the case and was medicinal or operative, according to the causal factors at work. In idiopathic epilepsy medicinal means should be followed; while in a case resulting from traumatism the depressed bone, abscess or tumor should be removed.

The Cigarette: Its Relation to Mental and Nervous Diseases.—Dr. W. B. Fletcher, of Indianapolis, Ind., quoted extensively from articles by physicians and prominent laymen on the cigarette habit, and said that he had sometimes asked himself if the members of the medical profession were not largely

responsible for the wide-spread prejudice against the cigarette. It was so much easier to agree with the grief-stricken mother in assigning the cause of the loved one's downfall to the innocent habit of cigarette smoking than to say to her frankly the real cause which examination had revealed or which had been imparted under the seal of professional confidence. In the past twenty-two years he had examined over twelve hundred cases of nervous disease and insanity brought to the Central Hospital for the Insane, or in his private practice where the cause of the malady was given by their friends as the cigarette habit. In not one case had he reason to believe that tobacco had anything to do with the causation of the disease. They were all young men and some of them insane without doubt. Some of them smoked cigarettes to excess, but their insanity was only a cause of their excess, and not the excess the cause of the insanity. Many of them were simple cases of hebephrenia, with a cigarette attachment, so to speak. One poor fellow, sixteen years of age, and at the time in acute mania, had been severely punished by his father to "beat out the cigarette habit." After three months he recovered and proved to be an unusually bright and truthful boy. He acknowledged that he had smoked three cigarettes in his life just before his mind gave way from overwork in the harvest field. Some of the cases were tuberculosis of the brain; but he thought he was safe in saying that fully 90 per cent. were young fellows reared in idleness, who had acquired other habits of vulgar and vicious companions, which were reducing their vitality and sapping their brain, and the cigarette was used as a cover by patient, parent and friends as a scapegoat, or an excuse to hide their shame.

A Plea for More Moral Restraint for Students in Medical Colleges.—Dr. John M. Batten, of Downingtown, Pa., said there were three classes of students at medical colleges: First, those who had good morals, were industrious and ambitious, and had a high ideal objective point. Second, those whose morals were questionable, and were not as industrious as they should be, and were lacking in ambition, and consequently their ideal objective point was only mediocre. This class of students was easily led into evil habits. Third, there was a class of students who might have plenty of means furnished them for necessary and other expenses. Their ideal objective point in life was not high. Their morals were corrupt, and they had not been taught the value of economy. This class of students schemed to do evil and endeavored to corrupt others with whom they associated. He thought no medical college should have a charter that could not and would not provide for sufficient moral protection over the students who attended such institution.

The Tonic Alterative Action of Copper and Arsenic in Primary and Secondary Anemic States.—Dr. George F. Butler, of Chicago, said that arsenic had a very decided action on tissue change and markedly affected the glandular, nervous, respiratory and cutaneous systems. Copper was reputed to be a violent poison, yet, except so far as its toxic effects as a foreign body in the eye were concerned, this repute was decidedly undeserved. Copper was recommended as an alterative tonic useful in epilepsy, chorea and other spasmodic conditions, especially those connected with debility, by the older authors, and later therapeutists sustained this old repute of copper. Several authorities were quoted to the effect that the drug, in small doses, stimulated both

BOOK REVIEWS.

the heart and the capillary circulation, and was a general nerve tonic. As to the preparation to be employed, all agreed that while copper sulphate was of value, it had at times unexpected dangerous untoward effects when the point of saturation was reached. These effects, through the influence of the drug on the vascular system, often took the direction of cardiac neuralgias and pseudo-anginas. The double salts of copper, in small doses, exerted a cardiac action similar to that of digitalin, strophanthus, helleborein, etc. Hare preferred copper arsenite. He had found that under its use digestion and nutrition improved. It was superior to Fowler's solution in chorea and similar neuroses. In toxemic conditions, like secondary malarious manifestations, with the resultant pallor, copper and arsenic were of decided value. Cases in which the periodic tendency had disappeared, improved decidedly under copper and arsenic, whereas quinine and iron were worse than useless. The influence of arsenic was very marked on chronic rheumatism and so-called rheumatic gout, neuralgias of various sorts, in tic, and hemicrania, as well as in angina pectoris, chorea, epilepsy and asthma. In certain of the gouty bronchites, at the onset of phthisis, in imperfectly cleared up pneumonic lung consolidation, arsenic acted sometimes with remarkable efficiency. The influence of both drugs on the liver, whose double functions were so necessary to the tissue changes of the system, showed that both played a part in assisting assimilation, and at the same time destroying waste products.

The Claims of the Adolescent.—Dr. Frank P. Norbury, of Jacksonville, Ill., said that the claims of the adolescent for recognition by the medical profession were genuine, not hypothetical, and involved three important considerations: (1) Physiological (a study of growth, development, sex differentiation). (2) Psychological—normal and morbid, involving honest endeavor of the physician to see the real needs of the individual. (3) Pedagogical—training and treatment to go together.

All of these considerations showed that a demand existed for qualified men to consider earnestly the problems of mind and body of this period.

The following papers were likewise read: "Heads and Tales," by Dr. T. B. Greenley, of Meadow Lawn, Ky.; "Simple Eye Conditions That Should Be Familiar to Every Physician," by Dr. Mark P. Stevenson, of Akron, Ohio; "Some Interesting Problems in Urinary Diagnosis," by Dr. Arthur R. Elliott, of Chicago; "Concerning Hepatic Uremia and Its Treatment," by Dr. Alfred C. Croftan, of Chicago; "Enterotoxism (Auto-Intoxication) from Meat," by Dr. Fenton B. Turck, of Chicago; "The Leucocytes in Pertussis," by Dr. F. S. Churchill, of Chicago; "Remarks on Poliomyelitis," by Dr. Hugh T. Patrick, of Chicago; "Demonstration of Sleep-Inducing Method," by Dr. J. B. Learned, of Northampton, Mass.; "Some Rare Sequelae of Syphilis," by Dr. Henry J. Scherck, of St. Louis, Mo.

Starvation Operation.—This autumn Dr. Dawbarn met Dr. Ernest Laplace, of Philadelphia, the well-known surgeon, just back from Paris. He said that he had there seen Professor Doyen do the starvation operations on more than one patient with cancer of the tongue, and that it is now in frequent use among Parisian surgeons. They realize that it is not permanently curative of cancer, but Dr. Laplace says they claim to get more effective results from X-ray and antitoxin treatments when used immediately after the starvation operation.

THE MEDICAL EPITOME SERIES.—PRACTICE OF MEDICINE. By HUGHES DAYTON, M.D., Principal to the Class in Medicine, New York Hospital Out-Patient Department; Clinical Assistant in Medicine, Vanderbilt Clinic, College of Physicians and Surgeons, Columbia University. Series edited by VICTOR COX PEDERSON, A.M., M.D. Lea Brothers & Company, New York and Philadelphia.

WHILE rather critical of a "microscopic" text-book, we cannot but commend the author for the skill in abstracting shown in this book. Like the rest of the Medical Epitome Series, it is a pocket manual, intended as a rapid review guide, and we cannot therefore expect it to include much by way of explanation or discussion. But the excellent classification of Osler has been followed quite closely, the introductory remarks on immunity have been revised by Prof. Prudden, and space has been gained by the omission of diseases of larynx, pharynx and tonsils, which are treated of in another manual of this series. So the book is a veritable *multum in parvo*, and, if the desire for brevity has caused the omission of a fair number of important items, yet the book can be commended to the student who knows the larger books and will use this merely as an aid to review. Certainly it would have been difficult to get more matter into the same space, and the selection of material is good.

AN INTRODUCTION TO PHARMACOGNOSY. By SMITH ELY JELLIFFE, M.D., Ph.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in Columbia University (College of Physicians and Surgeons), New York. Fully illustrated. W. B. Saunders & Company, Philadelphia, New York and London.

THOUGH of more immediate need to the pharmacist or to the buyer and collector of crude drugs, still there is much of value to be gained from these pages by physicians, chemists, and those engaged in medicolegal work. The classification is into Animal Drugs, Vegetable Drugs without Organic Structure (sugars, gums, resins, etc.), and Vegetable Drugs with Organic Structure (roots, barks, leaves, etc.). In a very brief, but at the same time, very efficient manner, each drug is considered as regards its Source, its appearance as it comes to market, its adulterants or substitutes, its microscopic appearance, and the chemistry of its constituents (such as alkaloids, oils, resins, gums, etc.). These plant constituents and their properties are also taken up in groups in a separate portion of the books, and considerable space is given to the identification of drugs in powdered form. The illustrations are admirably chosen, many of them original; and especially helpful are those of the author showing the microscopic appearance of the various drugs when powdered. There are but few works on this subject that are available for any but specialists, though there is much investigation being carried on in this field. The author is, therefore, to be congratulated on his success in gathering the newer findings and making them available for all.

INTERNATIONAL CLINICS, a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, by leading members of the medical profession throughout the World. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia. With regular correspondents in Montreal, London, Paris, Ber-

lin, Vienna, Leipsic, Brussels and Carlsbad. Volume II. Fifteenth Series, 1905. J. P. Lippincott Company, Philadelphia and London.

THE present number of the International Clinics contains at least one article that every practitioner of medicine in this country should read. The title of it is "The Diagnosis of Incipient Thoracic Tuberculosis," by Robert N. Willson, M.D. Over fifty pages altogether are devoted to this one subject, but every bit of it is worth reading, and the space could not have been given up to more valuable clinical material. What might well have served as the text for the volume is a quotation from Dr. Trudeau, to whom all of us, as well as the author, must give credit for the inspiration to study along this line. Dr. Trudeau says: "The average medical man's idea of tuberculosis only relates to the disease after the rational and physical signs have become well marked." Another good authority on tuberculosis has said: "That it is almost hopeless to expect that the general practitioner shall diagnose tuberculosis of the lungs in the early stages of the disease. Sometimes there is only disturbance of the pulse, with the history of exposure to indicate incipient tuberculosis. Sometimes there is slight disturbance of temperature; sometimes it is only a persistent cough, for which no good reason can be found. The first symptoms differ very much in different cases, and no single pathognomonic sign can be given. There are a number of other good articles, but this is the one likely to do most good in the present stage of our knowledge of diagnosis and treatment of tuberculosis.

EYE, EAR, NOSE AND THROAT NURSING. By A. EDWARD DAVIS, A.M., M.D., Professor of Diseases of the Eye in the New York Post-Graduate School and Hospital, and BEAMAN DOUGLAS, M.D., Professor of Diseases of the Nose and Throat in the New York Post-Graduate Medical School and Hospital. F. A. Davis Company, Publishers, Philadelphia.

THIS book was written for nurses, and will serve its purpose well. It is thorough and well arranged. The style is clear and the information it provides is indispensable for all who would assume the great responsibilities entailed in caring for those afflicted with diseases of the eye and ear, and especially after operations.

It is right that a trained nurse should be taught all that her time and capacity will permit her to learn about her work, even though such knowledge may seem to have no practical bearing on her work. Even the principles of operations and the theories of disease can only add to the intelligent co-operation which the physician has a right to expect. In these respects the book deserves commendation, and in its specific directions it leaves nothing to be desired.

THE INTESTINAL CATARRHS, a Clinical Study of Colitis, Appendicitis and their allies, with a special new section on Sprue. By EDWARD BLAKE, M.D., member of the Royal College of Surgeons, the French Hygienic Society, etc. H. J. Glaiser, London; W. T. Keener & Co., Chicago.

THE author of this work has written books on a variety of medical subjects, from "Ankle-Strain to Heart-Hurry," and the "Study of the Hand for Indications of Local and General Disease." But forgotten are his former loves in his enthusiasm, and all-absorption in the present one.

Intestinal catarrh is now the alpha and omega, the cause and result of all the troubles to which flesh is heir. Among other numerous evils which may follow its development are rickets, dilated stomach, arterio-

sclerosis, exophthalmic goiter and senile enuresis. Much that is good and up-to-date in this book is so sadly mixed with the fanciful that we dare not trust any of the author's conclusions. Where, for example, could he get the idea that the cramps which follow the eating of unripe apples may be due to the irritating effects of malic acid in the anterior cornua of the spinal cord; or on what pathological basis can he say "It is in part because colitis is a descending disease that the right kidney is the first to be displaced. It is the first to be reached, and is, therefore, the first to suffer."

The style, too, with language a little flowery, statements overdrawn, many departures from the subject in hand to inculcate a moral or to propagate some unallied fad of the author, and above all, his martyr-like attitude of doing what he does for humanity's sake, forcibly remind us Americans of our political "spell-binder."

PRACTICAL MASSAGE IN TWENTY LESSONS. By HARTVIG NISSEN, Instructor and Lecturer in Massage and Gymnastics at Harvard University Summer School, etc. Author of Swedish Movement and Massage Treatment. F. A. Davis Company, Philadelphia.

The author has had a wide experience teaching massage for several years at the Harvard University Summer School and to private pupils for upward of thirty years. The method which he advises is a combination of what his experience has taught him to be the best and most useful manipulations and movements out of the many taught and practised. The little book is remarkably well printed and put together. The illustrations are simple but direct and self-explanatory. Almost all of them are original, and not a few are photographic. The book is divided into twenty lessons, each one being a complete paper in itself and full of intensely practical and useful information. With such a great number of "fake" massage operators flooding the country, as yet unfortunately entirely unrestricted in their activities, a prey upon the commonwealth and the physician, the arrival of this little book is most opportune, and it is no exaggeration to say that if physicians were to read through these twenty lessons, which could easily be done in three or four hours' time, they would be better able to protect their patients from the worthless so-called "treatments" inflicted by incompetent operators. It is therefore a great pleasure to commend this little book to all physicians having the welfare of their patients at heart.

THE DIVISION OF SURGERY, of the Medical School of Harvard University, Bulletin No. 4.

It is refreshing to look over this bulletin, devoted to research work in surgery, a subject that until a very recent date has been grossly neglected in this country, except in the case of one or two progressive universities. The Harvard Medical School is to be congratulated on presenting to the public its bulletin of 88 pages so well edited, so profusely illustrated, and, needless to say, containing a mass of reliable surgical new thought and work. It is to be hoped that the time is not far distant when the other medical schools of the country will be able to follow the lead of Harvard and of Hopkins in publishing like bulletins.

Gould presents an improved technic for end-to-end anastomosis. He also shows an admirably illustrated method of performing gastro-enterostomy. Murphy,

whose work in positive pressure for intrathoracic operations is so well known, contributes some observations on drainage of the peritoneal cavity. It is impossible, in a short review, to call attention to all of the papers, but no report would, in any sense, be complete without giving space to the Cannon-Blake observations on gastro-enterostomy and pyloroplasty. They have shown that there is no reason to suppose that "drainage from the stomach occurs in the sense of gavity drainage. Their further conclusions, which are too extensive to be cited here, are of such nature as to modify the entire subject of gastric surgery, particularly in reference to drainage.

SUPERSTITION IN MEDICINE. By Prof. Dr. HUGO MAGNUS. Authorized translation from the German. Edited by Julius L. Salinger, M.D., late Assistant Professor of Clinical Medicine, Jefferson Medical College. Physician to the Philadelphia General Hospital, etc. Funk & Wagnalls Company, New York and London.

PROFESSOR MAGNUS has made not only an interesting but a valuable book. To the ordinary reader, however, it cannot help but appear that much more good might have been accomplished without arousing the feeling of opposition that will come in many minds because the superstitions of religion as well as medicine are included in this volume. Religion has had its superstitions and they have been much discussed, but medicine, even when pretending to be most scientific, has fairly reeked with superstitions, some of them of the most absurd kind. A detailed history of these would have been a precious lesson for every generation of medical men, not to be overhasty in accepting even what looked like scientific truth until it had been fairly tested by the only proper control, experience. Dr. Salinger has distinctly added to the value of the book by his chapter upon medical superstition and insanity. The bibliography in the middle of the volume is a precious addition and a mine of information.

AN ATLAS OF DERMATOLOGY, SHOWING THE APPEARANCES, CLINICAL AND MICROSCOPICAL, NORMAL AND ABNORMAL OF CONDITIONS OF THE SKIN. By MORGAN DOCKRELL, M.A., M.D. (Dub. Univ.), Senior Physician and Chesterfield Lecturer on Dermatology to St. John's Hospital for Diseases of the Skin. Longmans, Green & Co., London, New York and Bombay.

THIS atlas will doubtless prove of great practical utility to the ordinary practitioner student of skin diseases who has not time in the midst of a busy practice, especially in a country town, to make himself familiar with all the types of dermatological lesions. The arrangement of the volume is to be especially recommended. The picture of the patient with the lesion is given on the upper half of the page and the plate with the microscopic details of the lesion on the lower half, both in colors. There is just sufficient letter press to describe the illustrations without wasting any words or leaving anything obscure. Mainly the ordinary lesions of the skin diseases are pictured, but some of the more unusual types are also to be found.

There is an excellent example of acne keloid, as it occurs sometimes at the back of the neck. There is also a good illustration of hyaline degeneration of the skin, a condition at one time taken to be colloid millium, but now known to differ from it, since in the one the material in the little bullæ is hyaline and not colloid, as in the other case. There is also a good plate of adenoma sebaceum.

BOOKS RECEIVED.

TRANSACTIONS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. 8vo, 471 pages.

OPHTHALMIC NEURAL MYOLOGY. By Dr. G. C. Savage. 8vo, 221 pages. Nashville, Tenn.

VITAL QUESTIONS. By Dr. H. D. Chapin. 12mo, 190 pages. Thomas Y. Crowell & Co., New York.

HANDBOOK OF PHYSIOLOGY. By Dr. A. Flint. 8vo, 877 pages. Illustrated. The Macmillan Co., New York.

CARBONIC ACID IN MEDICINE. By Dr. A. Rose. 12mo, 260 pages. Illustrated. Funk & Wagnalls, New York.

A COMPEND OF HISTOLOGY. By Dr. H. E. Radasch. 12mo, 304 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

THE MEDICAL DISEASES OF INDIA. By Dr. F. M. Sandwith. Volume I. 8vo, 316 pages. Illustrated. Henry Kimpton, London.

NERVOUS DISEASES OF CHILDHOOD. By Dr. B. Sachs. Second edition. 8vo, 571 pages. Illustrated. Wm. Wood & Co., New York.

SYLLABUS OF MATERIA MEDICA. By Dr. Warren Coleman. Second edition. 12mo, 189 pages. Wm. Wood & Co., New York.

TRANSACTIONS OF THE ROCKY MOUNTAIN INTERSTATE MEDICAL ASSOCIATION. 1904. 8vo, 216 pages. Illustrated. Denver, Colo.

LABORATORY GUIDE IN BACTERIOLOGY. By Dr. P. G. Heinemann. 12mo, 143 pages. Illustrated. University of Chicago Press, Chicago.

THE EYE, ITS REFRACTION AND DISEASES. By Dr. D. E. Gibbons. Volume II. 8vo, 630 pages. Illustrated. The Macmillan Co., New York.

TEXT BOOK OF PRACTICAL MEDICINE. By Dr. W. Bain. 8vo, 1011 pages. Illustrated. Longmans, Green & Co., New York, London and Bombay.

SAUNDERS' POCKET MEDICAL FORMULARY. By Dr. W. N. Powell. Seventh edition. 301 pages. W. B. Saunders & Co., Philadelphia and London.

COLOR VISION AND COLOR BLINDNESS. By Dr. J. E. Jennings. Second edition. 8vo, 132 pages. Illustrated. F. A. Davis Co., Philadelphia.

MATERIA MEDICA AND PHARMACY. By Dr. R. W. Wilcox. Sixth edition. Volume I. 8vo, 624 pages. P. Blakiston's Son & Co., Philadelphia.

PROGRESSIVE MEDICINE. Volume III. September, 1905. 8vo, 298 pages. Illustrated. Lea Brothers and Company, Philadelphia and New York.

SURGICAL ASPECTS OF DIGESTIVE DISORDERS. By Drs. J. G. Mumford and A. K. Stone. 8vo, 396 pages. Illustrated. The Macmillan Co., New York.

IMMUNITY IN INFECTIVE DISEASES. By Dr. E. Metchnikoff. Translated by Dr. F. G. Binnie. 8vo, 591 pages. Illustrated. The Macmillan Co., New York.

METHODS OF MORBID HISTOLOGY AND CLINICAL PATHOLOGY. By Drs. I. W. Hall and G. Herxheimer. 8vo, 290 pages. Illustrated. J. B. Lippincott Co., Philadelphia.

TRANSACTIONS OF THE WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Fourteenth annual meeting. 8vo, 4747 pages. American Medical Association Press, Chicago.

A MANUEL OF DISEASES OF THE NOSE AND THROAT. By Dr. C. G. Coakley. Third edition. 8vo, 594 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

NATIONAL STANDARD DISPENSATORY. By Drs. H. A. Hare, C. Caspari, H. H. Rusby, J. F. Geisler, E. Kremers and D. Base. 8vo, 1860 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, NOVEMBER 18, 1905.

NO. 21.

ORIGINAL ARTICLES.

REMINISCENCES OF DR. THOMAS ADDIS EMMET.*

BEFORE entering upon my autobiographical narrative, which, it has been suggested, would be an appropriate and interesting form of response to your toast, I wish to express my fullest appreciation of the honor you have done me. I can say no more to give greater expression to the depth of my feelings than I thank you all, and with all my heart.

This occasion I feel may prove a vindication of my work as well as the most important event of my life. I naturally asked for the names of those who were the prime movers in tendering me this dinner, and my surprise was great to learn that I had not been honored by my friends alone. There are a number among you who I will not say have been inimical, but who certainly lacked appreciation of my methods and who have long held that I was a teacher of false doctrine. Now possibly the pendulum has begun to swing the other way, as I have hoped and prayed for years it would, but, be this as it may, you are friendly *now* or you would not be here, and my heart warms equally to one and all of you. I have long finished my life's work, and the desire now with me is peace and good will to all. It has been a surprise to me with advancing years how quickly have been forgotten the disagreeable incidents which I now realize must attend the professional course of all men with decided opinions as I have held, and who stood, as I have always, ready to defend them.

I was born at the University of Virginia, near Charlottesville, where my father was one of the original professors appointed by Mr. Jefferson to fill the chair of Natural History and afterward of chemistry. An effort to recall the incidents of my early life has nearly overpowered me with the vivid recollection of persons and events which had passed from my mind for so many years.

Above all, stands out the recollection of my father, Dr. John Patten Emmet, a remarkable man both in character and attainments. For years previous to his death he had been my constant companion. It is my belief few fathers ever made a more lasting impression upon the moral development and after-life of a son than

he made upon mine. From my earliest age he seemed seldom to have spoken to me without attempting to teach me something which I readily understood, and of which I seemed to have retained the recollection. He taught me to think and to think of the rights of others; to be careful in money matters; to obey the laws of God and man from principle, and to realize to a full degree my duty to both. He taught me to be a close observer, and to seek the causes of things. Thus was laid the foundation of my success in after life as a pioneer in the development of the theory and practice of gynecology. On one occasion he taught me a very practical lesson. He overheard me finding fault, in an arrogant manner, with the negro whose business it was to clean my shoes. With a twinkle in his eye, which I well remember, and in a kindly manner as if conferring a privilege, he said: "My boy, from this time forth, so long as you are under my roof, you shall clean your own shoes, and this will give you the satisfaction of always being able to have your shoes exactly in the condition you wish." This taught me to be self-reliant and to this day I am reluctant to call upon anyone to do for me what I can do for myself. I have gone through life with an increasing ambition to be worthy of his good name, and my first thought has been the gratification he would have experienced in the flesh, on every occasion where I have attained success or have been the recipient of some honor.

My father, at his death, left me, at the age of fourteen, little more than his example and good name. From that time I have had to think for myself and practically to have paid my own way. A relative advanced me the money so long as I needed it, but all of this I repaid with interest as soon as possible. In return for his kindness it is one of the most gratifying incidents of my life to have had the privilege and ability years after, to lighten his burden, when a reverse of fortune came upon him in his old age.

After my father's death, I entered the University as a student, but the fact of my residence as the son of a professor, my youth and a very rapid physical development militated against any steady mental application. My gun, my dog and my horse, the fields and the woods on the neighboring mountains saw more of me than my professors, until finally, falling hopelessly behind in my classes, it was requested by the faculty that I should withdraw from the college.

Dr. Robley Dunglison, of the Jefferson Medical School, Philadelphia, had been appointed a professor in the University of Virginia by Mr. Jefferson at the same time with my father, and they had been warm personal friends. Dr.

* This sketch was prepared by Dr. Emmet, to be read at the dinner, May 29, 1905, in a whole or in part, as might seem appropriate. Dr. Emmet, however, was called on at so late an hour that he made but a few extemporaneous remarks having little reference to what he had intended to say. The subjects treated in this sketch have been considered of especial interest in connection with some of the remarks made by the different speakers who were ignorant of what Dr. Emmet had prepared. After deciding to print this narrative, new material entering more into detail was added by him for the purpose of elucidating the subjects briefly referred to in common, but otherwise the manuscript has remained unchanged.

Dunglison assisted at my birth, but had left the University before my recollection. I have always possessed the faculty of being able to decide quickly for myself in any emergency. Being thus suddenly stranded I wrote to Dr. Dunglison as to a stranger, telling him the circumstances and asking his advice as to the advisability of trying to study medicine. I received a prompt and generous response. The Doctor fully understood my difficulty and his advice was to make no effort to study, but to attend the medical lectures regularly and try to remember what I could. The first medical lecture I ever heard was delivered by Dr. J. K. Mitchell, the professor of the theory and practice of medicine in the Jefferson, and from that hour I felt that my life's work was laid out for me.

My course of study was an uneventful one with the exception of an attack of smallpox and one of pneumonia, for which I was immediately bled, got a dose of calomel, and convalesced promptly. I led a frugal life, attended strictly to my work and kept my living expenses and extravagances within three hundred dollars a year. At the ending of four years, and after the delay of a year to pass my twenty-first birthday, I graduated.

In response to the action of the American Medical Association, which had been but recently organized, the examinations for graduation in medicine were said to have been particularly strict in 1849-50. I certainly passed a creditable examination, but without having dissected more than the sartorius muscle, without having written a prescription, or having attended an obstetrical case. I make this statement in no disparagement of the Jefferson medical faculty, as with advancing experience I have been impressed with the fact that these professors formed a remarkable body of men. Each was a host in himself, and I doubt if their equal as a whole were ever gotten together in any other medical school, at home or abroad. The system of teaching was defective in this respect then as it is to-day, and only those who were fortunate enough to obtain hospital appointments just after graduation were able to correct the defect by gaining the necessary practical experience. Otherwise the greater part of a lifetime must be spent in private practice to obtain what was necessary at the beginning. I knew thoroughly the theory of medicine, and by means of plates my knowledge of anatomy was perfect, nor can I recall having had the slightest difficulty in answering any important question.

Among the medical men and their assistants with whom I was brought in contact at that time there was a great deal of common sense and appreciation of the practical value of what should be taught, and yet there was no lack in estimation as to the value of detail and accurate knowledge where it was applicable. I attended each year the summer course in Philadelphia, which was a repetition of the winter one given

in the college. The lectures were delivered by younger men who were well trained, and all of those who lived became prominent later in life. On one occasion a Dr. Wallace, who already had a large surgical practice, was to lecture on hernia one hot July afternoon, when it was hot only as it can be sometimes in Philadelphia. The Doctor weighed about three hundred pounds, and after divesting himself of all the clothing he could spare, came in with the trunk of a subject to make his demonstration. But the heat was too much for him and, mopping himself between each word, he began: "When you come to operate for hernia you will find little you have been taught to expect, and I cannot now enter into a fuller explanation, but it is in a nutshell, cut until you come to the gut, and you will be a damn fool if you cut it; good day." When the weather got cooler the Doctor did the subject full justice in his usual affable manner, but to this hot day I am indebted for an important practical lesson being forcibly impressed upon me. Many times in after-life, when I had lost my way in the abdominal cavity, where everything had become matted together by frequent attacks of peritonitis and where often in the tissues there seemed but the thickness and consistency of damp tissue paper as the only barrier to some accident which might cause the death of the patient, I have felt a wave of demoralization pass through me down to my knees. I would suddenly think of the lecture on hernia, with the full details which I have not given, and with a smile not in keeping with the situation, I have had my faculties sharpened so that with care and time I have soon worked out into a clearing, with no further difficulty before me.

I do not cite this incident of the lecture on hernia as a reflection upon Dr. Wallace, but in appreciation of the terse and practical lesson the doctor wished to convey. Notwithstanding the accidental inelegant mode of expression, it impressed everyone who heard his few words with the necessity of self-reliance under every circumstance, and, above all, that the difficulties of the operation were exaggerated by the usual mode of teaching. Dr. Wallace had already gained a reputation as a careful and successful surgeon before his death.

On the day of graduation, after a long ceremony, I received my diploma and reached my lodgings late for dinner, but before I had finished I was summoned by a communication from the dean of the faculty to call upon him without delay. My first thought was that some mistake had been made about my diploma, and I answered the summons with a heavy heart. I was informed that through an agent of the Chilean government the faculty had been requested to select from the graduating class some one fitted to take charge, as surgeon, of an expedition, and that I had received the appointment. The expedition was about to sail from New York under St. George Campbell, the engineer, who was to

build the first railroad in Chili, for Meiggs, who afterward became known as the railroad king. I was to receive three thousand dollars a year in gold and all my living and traveling expenses paid upon binding myself to remain until the completion of the road. This seemed a fabulous sum to one in my circumstances, and in relative value would be about equal to twelve thousand dollars at the present time. Without delay I called on the merchant in New York who had the fitting out of the expedition and was very cordially received as a person of some importance. I was explicitly informed by him that no expense should be spared in fitting out my department, or in consulting anyone as an expert who could aid me. I learned that about eight hundred men, women and children were going, and as we would likely be about three years up among the Andes Mountains, unable to supply any deficiency, it was necessary that no mistake of omission should be made in supplying everything which would be necessary in addition to medicines and surgical outfit. To make a beginning I was requested then and there to write out a requisition for medicines, to which I could make additions afterward. I had no difficulty in writing out the names of a number of medicines, but soon I began to perspire freely on realizing for the first time the responsibility I was about to assume. After chewing for a short time upon the end of my quill pen, to aid my thoughts as to what I should do, I took up my hat, went out to the merchant and told him I could not conscientiously accept the position. He looked at me as if he thought I was a fool, and I passed out without comment. I afterward learned that a young graduate, who probably had not had my advantages; accepted the position; but I was never able to ascertain how he "made out."

I have never had my sense of duty so severely taxed as on this occasion, where I had to put aside so completely every consideration of self interest, and it seemed at the time as if my decision was the wiping out of all future prospects.

Within a short distance of the counting house I met Dr. MacNeven, the only person I knew in the city outside of my family circle. He asked me what I was doing in New York, and I asked him what he was doing downtown at that hour. It was just after the frightful famine in Ireland when several hundred thousand immigrants had landed during the year in New York, and were dying in the streets of typhus, or ship fever, as it was called. Commissioners of Emigration were appointed, and they were erecting temporary buildings on Ward's Island for hospital purposes. A medical board of fifteen visiting physicians had been appointed, and Dr. MacNeven was one of the number. He was on his way to the place of meeting to examine applicants for the position of Resident physician, and I accompanied him. I was the first victim, and after an examination of four hours, during which each member of the Board took a turn, I was judged

competent and reported for duty on the following day. I had never seen a case of ship fever, yet a building containing one hundred male cases was assigned to me, together with one hundred and fifty beds in addition for sick children and women, all of whom I had to visit regularly twice a day and as often as necessary to see any special case. I was also instructed to "go through" once a day a ward near my quarters containing about one hundred aged women. I was somewhat staggered at the responsibility put upon me, but I accepted the situation with a light heart as the only means by which I could gain experience in the practice of my profession.

At an early hour next morning I began my work with the old women, feeling fully satisfied that I would accomplish what was expected of me if it could be done by my own efforts. I supposed all occupying beds in a hospital ward were sick, but when I was through, taking each woman in rotation, I had not a very clear idea of my morning's work, beyond having apparently cheered up greatly the spirits of the old women by my attentions. In my effort to do justice to the complaints of each and to use to their advantage the account of family or traditional ailments, which were communicated by each in confidence, I had written pages of prescriptions, having attempted to treat symptoms, singly and in groups.

I was seen coming out of the building, weary and in want of food and was accosted by one of the staff with the salutation: "In the name of Heaven, Doctor, what have you been doing in there all day with those old women? Don't you know that is part of the Refuge and all they need is a little tea and tobacco?"

Fortunately for the sick in my service that day when I was wanted and could not be found, another physician had been assigned to them and I was assisted each day thereafter. But further comment is unnecessary, in addition to what I have already expressed on our faulty method of teaching practice. At the end of some ten days I developed an attack of ship fever and escaped death by a very narrow margin, but I was back again at work within a month after the fever left me, although a leave of absence was generally granted for three months to recuperate. Contrary to rule, I had a second attack thirteen months later, which was so virulent in character that to save my life it was necessary to move me from the hospital atmosphere, with my nurses, to the house of an uncle in the city, which he and his family vacated on a few hours' notice, and it took me two months to regain my strength sufficiently to resume my work.

I served as a resident physician for three years, having had in that time under my charge about eleven thousand miscellaneous cases, including all the eruptive fevers among adults and children, with over nineteen hundred cases of adult males suffering from ship fever. I got also some surgical experience and served my

time in the Obstetrical Department, where from five to ten women a day were delivered. The interne was in full charge of the practice for about twenty-two hours out of each day, and whenever the visiting physician was not on duty. I frequently volunteered in the Pharmacy, and after my regular work was finished I served many hours at night in helping put up prescriptions. This experience was of great advantage when I began private practice, as a large number of physicians then still furnished their office patients with medicines, and I continued the custom for a number of years. A revival of the custom would be an offset to the prescribing druggists, and, from a pecuniary point, be of great advantage to the profession by stopping the repeating by druggists of old prescriptions for former patients and for all their friends on one office fee. In addition, as part of my volunteer work, I made fully one thousand post-mortem examinations. I thus familiarized myself with every pathological condition, with the exception of true yellow fever, of which I saw very few cases, but we had a number known as Chagres fever. At that time the Panama Railroad was being built, and at the beginning it was part of the duty of our staff to select with the greatest care the laborers, who were nearly all young Irishmen, and a finer set of men were never selected for any service. Making allowances for all exaggeration, the mortality was frightful and few returned but those who were brought back sick to Ward's Island. It was said at the time that with an allowance of eighteen inches for each body, laid side by side, the railroad track could have been covered with the dead from ocean to ocean.

During my service in the hospital I took no holiday, and, with the exception of about three months and a half, while I was sick with ship fever, I was on continuous duty for three years in a service from which a number died and and many were obliged to resign in consequence of imperfect health. Yet I had a great deal of recreation, pleasure and time for reading. During my first winter I built after my own design a sailboat about nineteen feet long, beginning with the centerboard box and building out from that to the stern and bow. I was said to have disregarded all rules applicable to boat building, and yet I turned out a so-called nondescript which I used for two years. She was so active in her movements that I christened her "Senna and Salts," a combination probably known to few of you in practice to-day, but one which was speedy in movement and decided in action. I should state that I have a natural turn for mechanics, and at one time I possessed a collection of tools selected from almost every trade. I could carve in wood, and there was scarcely anything I wanted in wood or iron which I could not reproduce by some method of my own, unless the skill of an expert was needed. I will have to refer again to how much a knowledge

of mechanics aided me in the development of my work in plastic surgery.

About two weeks before the expiration of my service as one of the Resident Physicians my Visiting Physician resigned. To my astonishment and satisfaction I received in a few days an official communication from the Board of Commissioners of Emigration notifying me I had been appointed a member of the Visiting Board of Physicians, and I was informed that the election had rested on my record of service. I was twenty years the junior of Dr. J. M. Carnochan, who had been the youngest member of the board, and at the first meeting I became the secretary. My salary as Visiting Physician was four dollars a day, on which I soon married. With the prospect of building up a practice, I was fully contented, when I was so fortunate as to receive twenty-five cents cash for a visit among the tenement houses, then situated along the East River below Fourteenth Street. I received about fifty dollars for my first year's work in private practice, but after that time I advanced rapidly.

Some six months after my appointment and during the winter of 1853, I nearly lost my life in the discharge of my duty. There was a blizzard, with a fall of snow I have never seen equaled, and for two days there was scarcely an attempt made to travel on foot or by vehicle. I lived in Fourth Avenue near Twelfth Street, and in front of my door was the Harlem & New Haven Railroad, which had its depot then near the corner of Canal Street and in Broadway. Early in the morning of the third day a car passed with a steam snow plough to open the way. I decided it was my duty, as the youngest man of the Medical Board, to make an attempt to reach the hospital on Ward's Island, where I knew no Visiting Physician had been able to report for service for four days. I was two hours on this train reaching One Hundred and tenth Street, and where the railroad crossed the Harlem flats there was an open waste covered with snow three or four feet deep, and frequently I found it in drifts over my head. It was several hours before I was able to reach the ferry house on the Harlem River, and, notwithstanding the thermometer was at zero, I was in a profuse perspiration, in consequence of the great exertion I had made. The river had been frozen over, as well as the greater part of Hell Gate, but it was flood tide, and when I reached there the river was filled with large cakes of ice piling up on each other from the force of the current. I could induce no one among the ferry men to accompany me in my effort to cross the river; but this did not discourage me as I was strong, self-reliant and foolhardy. I took a light flat-bottom skiff with each oar secured in a grummet, crossed the river by dragging the boat from one piece of ice to another, and several times fell in, getting wet above the waist. I finally succeeded in landing on the island with

my clothing frozen on me and in quite an exhausted condition. I got a drink of brandy and visited my own patients, together with a number in the other services, wherever my advice was needed. I recrossed the river in the same manner, but with less exertion, as there were a number of open spaces where I was able to row. It was just growing dark when I reached the little railroad station on the viaduct, which I found empty, without a fire and with the prospect of freezing to death before morning if no train passed. I should have remained at the hospital, but it was before the days of local telegraph or telephone, and I was unwilling to subject my family to so many additional hours of uncertainty. A train came up fortunately soon after and stopped on my signal, so that I reached home after twelve hours' exposure, with my strength greatly overtaxed and weak from fasting all day, as I had neither time nor thought at the hospital to take any food.

I have detailed these circumstances as my experience was an interesting one from a medical standpoint. To my surprise I took no cold and next day suffered only from fatigue, but after some days I developed rheumatic fever and lay for six weeks on cotton, during which time I believe not a joint in my body, except in my spine, escaped the inflammatory action. After I began to sit up I suffered for a few days from sudden attacks of palpitation and from syncope. Later on I twice dropped out of my chair unconscious for a moment in consequence of a draft of cold air caused by a window being opened suddenly behind me. But I convalesced rapidly and from that time I have never been conscious of any heart disturbance beyond an occasional intermitting pulse not due to organic disease. I can at my age ascend a stairway, so far as my broken leg will allow me, with as little disturbance of my respiration as at any time in my life.

My last service as Visiting Physician at the Emigrant Refuge Hospital was rendered in the early summer of 1854. The physician who had been on duty for the shortest time took charge, according to rule, of any emergency ward which had to be opened, and did so in addition to his regular work. I thus became responsible for a cholera ward where, during my six weeks' service, eight hundred cholera cases were admitted, generally in a state of collapse, as the greater portion were picked up in the slums of the city. I had a number of assistants, but the responsibility of my position was a fearful one. I spent about four hours a day going from one bed to another, aiding the attending physician, and was present at nearly all the post-mortem examinations. On two occasions, when a larger number of bad cases than usual had been admitted, I found next morning all the patients and the nurses had died since my last visit. Yet very few cases died in the hospital proper among the nurses or patients where they received proper and prompt treatment at the beginning. The

nurses employed in the cholera wards were well paid for extra work, so that they were overworked and they relied too much on stimulants to keep up their strength. Many priests died, and I believe no record was kept of the number who lost their lives at Ward's Island. My strength was greatly taxed, and I became so saturated with the poison that I was seldom free from some of the premonitory symptoms, but these were readily kept in check. My rest was greatly disturbed, as I would be often seized in my sleep with cramps in my fingers, toes and in the calves of my legs. The physician who relieved me was very apprehensive for his safety and died in a week. He was the only physician who lost his life in this service. That I did not die during my service in the Emigrant Refuge Hospital made me think afterward that God probably preserved my life for some other work.

After I became associated with the Woman's Hospital I gradually realized that the chief work of my life was to be done there. What was required of me became evident. With a new field of study before me, and with a mass of material at my disposal, greater than anyone else had ever controlled, it was made evident that my mission was to teach.

It would be but repetition should I attempt to give here any detail of my experience connected with that service. I have already done this in an address by me on "Reminiscences of the Founders of the Woman's Hospital Association," published in the *New York Journal of Gynecology*, May, 1893; and afterward with some additions reprinted in the *American Gynecological and Obstetrical Journal*, April, 1899. To a greater extent I have treated of the subject in a paper, "Personal Reminiscences Associated with the Progress of Gynecology," read before the American Gynecological Society at the meeting in May, 1900, and published in the transactions of the Society for that year, and which was also printed in the *American Gynecological and Obstetrical Journal* for May, 1900.

In these papers I have also attempted to express my great obligation to my old friend Dr. J. Marion Sims, with whom, during our joint service of five years and a half at the Woman's Hospital my relations were as close as that of a son. If he had not given us his speculum, which opened the way for investigation, a knowledge of the use of silver wire and his perfect technic, I would never have been known to the world in connection with gynecology. Beyond the stated limit as to time, our work, however, lay on different lines and was viewed from different standpoints without the slightest connection one with the other.

It is now necessary for me again to refer to my experience at the University of Virginia to make clearer some of the difficulties which I managed to overcome to some extent in after life, and to show that even my limited tuition there proved of the greatest benefit. Mathe-

matics was the especial stumbling block in my course at the University, and yet I can now realize what advantage I would have gained from the aid of a tutor as is furnished to-day at our universities. I certainly am not totally deficient in the mathematical instinct, although I have never learned the multiplication table, at least not having acquired it in early life, I have made no effort to accomplish it in later years, as by some mental process of my own I am able to get at what I need. After I had been some years in practice and a married man with children, I managed to find time to go over a college course with private teachers. Mathematics did not interest me as a whole, but I found the study of geometry very fascinating. That I learned to cipher is shown by the series of statistical tables which I prepared for my work on "The Theory and Practice of Gynecology," on which special work I spent nearly two years and made every calculation myself. These details go to show, I think, that defective teaching at the beginning is generally the cause of failure even with the most stupid child.

The course of lectures on Natural Philosophy, as delivered by Prof. Wm. B. Rogers, was the only one which interested me. Consequently this line of study occupied much of my attention when years after I went over the college course. I thus learned to test every operation in plastic surgery by some principle of mechanics and was frequently able to judge of the value of any procedure devised by myself or another, without having actually to perform the operation. In my experience no plastic operation has ever been perfected to be of any practical value until it could stand a mechanical test. I will state, in addition, my conviction that no one in plastic surgery has ever been a successful operator, nor able to repeat to advantage the successful work of others, without possessing a mechanical instinct. This statement will doubtless be criticized, but by no one able to recognize the difference after a surgical procedure between a successful result and a failure.

I received my first professional recognition by being made a member of the Berlin Obstetrical Society, after publishing my work on "Vesicovaginal Fistula from Parturition and Other Causes," in 1868, and shortly after I was elected a member of the Medical Society of Norway.

My work on "The Principles and Practice of Gynecology" was published in 1879 and went through three editions in this country within fifteen months. All three editions were reproduced in London and translations into German and French were printed in Leipzig and in Paris. I have been informed that one was also made into Spanish, but the manuscript was lost by some accident. Whatever may have been the value of the work it was essentially original from cover to cover and it embodied the experience of the best part of my professional life.

It was published unfortunately just before the full development or adoption of the aseptic treatment as applied to abdominal surgery. In this respect the work was considered by some not full enough in detail, and yet I am still of the opinion that I taught the essentials. Others judged me not to be sufficiently advanced in my teaching, as I did not fully endorse all the surgical procedures of the period, but time has certainly sustained my judgment. A fourth edition of this work was never called for and fortunately, as I might have laid myself open to the charge of plagiarism. For everything I taught of special importance has gradually become absorbed into the practice of the profession during the past twenty-five years, and incorporated into every new book as common property, so that the origin of much has been lost.

I sometimes greatly enjoy a joke in a quiet way. It has not been more than six months since a physician from the West visited New York "to perfect himself," as he expressed it, and who, happening to hear of me somewhere, called to see me as one of the sights. As we had nothing in common I turned the conversation on his practice. He was, of course, a specialist in gynecology and for half an hour entertained me with an account of the advantage to be derived from hot water vaginal douches, dwelling on the importance of the dorsal position. I showed so much interest that he left with a gratified expression in consequence of having taught a New York doctor something new.

For writing "The Theory and Practice of Gynecology" I received the degree of Doctor of Laws from the Jefferson Medical University, the trustees of the Jefferson Medical College, Philadelphia, being the Governing Board. The Academical Department of this University, situated in Pennsylvania, has been in active operation for over a hundred years. This institution has conferred this degree, I have been informed, but five times, and I believe only on graduates from the medical department. This honor I share with Dr. Marion Sims, who graduated in 1836.

In 1898 I issued "The Emmet Family, with Some Incidents Relating to Irish History, etc." The work also contained an extended memoir of my father. For writing this book I had the honor of receiving the Laetare medal from the University of Notre Dame, Indiana. In 1903 I published an extended work, "Ireland under English Rule, etc.," a labor of years and on the merits of which the public has yet to render a verdict. I have written a number of articles on professional subjects, which have been published in the medical journals at home and abroad, and with which most of you are familiar. I have written various papers and addresses relating to American and Irish historical subjects, of which I have no record.

It seems fitting on this occasion, probably the last with which I shall have any professional re-

lation, that I should bring into more prominence certain points which I have omitted in the past from a feeling of delicacy, or the advisability of referring to which has since become more evident.

I can claim that my earliest important contribution to surgery was in teaching the great necessity for cleanliness, with regard to both patient and instruments, and this I taught to a degree for which none of my professional friends appreciated the need. With the aid of dear old Margaret Brennan, the nurse, I gained results in plastic surgery, thirty-five years ago, which in later years I found impossible with any trained nurse. She could give a glow of immaculate cleanliness to a vagina, in preparation for an operation, I have never seen equaled. She served God every moment of her life in her vocation as a nurse. All present who have ever served in the Woman's Hospital can recall her placid face; as she stood hour after hour holding the speculum immovable. I have sometimes seen a slight movement of her lips and I have said to her, in an undertone, "Margaret, who are you praying for now?" Her answer was: "For you and everybody," which was literally true, as her whole thought was for everybody but herself. For faithful and untiring service; skilful nursing; close observation and observance of detail, the world owes Margaret Brennan an unrecognized debt of gratitude, to an extent which can never be appreciated, for all she contributed toward the development of gynecology.

My work on Gynecology gives full evidence of many remarkable results obtained in abdominal surgery with her assistance and at a time when we had nothing but the skilful use of ordinary turpentine soap and hot water for preparing the patient, or the instruments. Those of you who are familiar with my early teaching at the Woman's Hospital have heard me reiterate in my clinics as an aphorism: "The death warrant of many a patient is carried under the finger nails of the operator." Before I ever heard of the existence of Lister, I taught this, and yet no man has ever appreciated more than I have the value of the former's work in educating the world as to the importance of asepsis. When the first Woman's Hospital building, at Forty-ninth Street and Park Avenue, New York, was opened under my charge, in 1868, as Surgeon-in-Chief, I had a steam or Russian bath in operation for the purpose of cleansing and where every case was prepared by several baths for a laparotomy and with the free use of turpentine soap. In 1871, when a medical board was formed to take charge of the service, none of my colleagues appreciated the necessity for any such preparation and all voted against me when it was decided to tear out this bath to make a reception room for the patients of the outdoor clinic.

Much good was accomplished by demonstrating the existence of lacerated cervix and the close relation of the injury to epitheloma, if it be not

the actual cause. The operation for repair filled an important place, but a still greater advance was made on showing the greater necessity for amputation, when it was discovered by me that in many cases the character of the lesion had become changed owing to the use of aseptic midwifery. Yet, it is difficult to determine if the good which has been obtained under all favorable circumstances, counterbalances the evil from the great abuse which has existed from operating unnecessarily, as well as from neglect on the other hand where an operative procedure should have been employed. The discovery of this injury and operation gave me a world-wide reputation and yet I have never been satisfied. From some unexplainable cause the profession at large has never mastered the subject in detail sufficiently to enable the good derived to compensate for the amount of injury resulting from ignorance or want of dexterity.

My success from operating to cure the injury and finally from having been the means of preventing the occurrence of vesico vaginal fistula, has given me far more gratification than I have ever had in connection with laceration of the cervix, and yet the extent of my work in relation to the former is comparatively but little known.

Dr. Sims made it possible by his teaching to close every fistula of any extent by means of silver wire wherever it was possible to bring the edges together free from tension. I developed the plastic methods by which nearly every case of greater injury could be cured in time, as I demonstrated in my book on this injury, published in 1868. Dr. Sims, after going abroad at the beginning of the Civil War, never had the opportunity to advance beyond the work which he described in his remarkable paper read before the New York Academy of Medicine previous to his departure. I gained good results where others had failed, or, in other words, I cured the supposed incurable cases sent me, but found it difficult to transmit my experience. This would have been a lamentable result but for the fortunate circumstance that I was able to demonstrate the cause of fistula and by the removal of this cause, the injury has become of rare occurrence, or simple in character. I read a paper at the meeting of the American Gynecological Society, in 1878, at Philadelphia, and published in the transactions for that year, by which I showed the lesion was always the result of delay in delivery and not from "meddlesome midwifery," as was then the accepted belief; and I showed that where ergot had been used, which was the common practice, the injury was much greater. I then promulgated the important point that an attendant would be most culpable of neglect if delivery were not accomplished without delay in every case when the head ceased to recede after a pain. Unless impaction has taken place the head will recede after every pain except just at the moment after it has passed from the uterus, but it is then so high that no injury

could result in a normal pelvis. This paper revolutionized the then accepted obstetrical practice throughout the world, and ergot itself has ceased to be used. Fifty years or more ago this frightful injury was so common that the Woman's Hospital was established for its cure, and to-day it may be said that it should never occur, unless such a degree of deformity exists that delivery cannot be accomplished, or an abdominal section is impossible.

I introduced the use of scissors into the surgical work of gynecology as a substitute for the knife and devised nearly all the different forms now in use, although others have gone over the same ground since. Without the aid of these instruments there would have been but little advance made in plastic surgery. There are other points which, in justice to myself, should be properly presented, and much which may hereafter be placed to the credit of American surgery, but I have said enough to indicate the course for further information.

This dinner has already given me a new lease of life and I feel as young as I did at the age of forty, but, unfortunately, my injured leg brings me down to close bearing and to the gait of a very old man. I, however, am enjoying life and every hour of it. I have been fortunate in having always had some hobby in active operation. I urge all of you to cultivate such an accomplishment as an investment for your old age, which will never cease to bear interest, and to try to get all the fun you can out of it. My present hobby is the study of the Irish language, which I began after my seventy-fifth year, and it has not only afforded me steady occupation, but intense enjoyment.

In saying farewell to you, one and all, it is my sincere prayer that as you advance in years it may be your good fortune to have your life pass on to the end with as smooth and restful a current as has been mine so far. I bid you farewell, and to many from different and distant sections of the country, it must, I fear, be for the last time.

FURTHER EVIDENCE OF IMMUNITY AGAINST CANCER IN MICE AFTER SPONTANEOUS RECOVERY.^{1 2}

BY G. H. A. CLOWES, PH.D.,

AND

F. W. BAESLACK, M.A.,

OF BUFFALO, N. Y.

In this communication it is proposed to summarize briefly the results of certain immunity experiments which constitute a part of a general investigation being carried on at the present time on the Jensen tumor mice by the staff of this laboratory. In previous publications³ it was

shown that the blood serum of spontaneously recovered mice exerted an effect upon growing tumors in other mice. It was pointed out, however, that the method employed (although affirmed by pathological findings) failed to give proof of the existence of a specific immune body because of the impossibility of determining the course of development which a tumor would have taken if untreated. We have been led, therefore, to adopt two other methods in the hope of demonstrating experimentally the existence of an immune body:

1. The re-inoculation of spontaneously recovered mice.

2. The admixture of cancer material previous to inoculation with the serum of recovered mice, the results being controlled by mixing material from the same tumor with normal serum or salt solution.

Up to the present time (June, 1905) about 1,600 mice have been employed in this laboratory in various experiments relating to the transplantation and development of the Jensen tumors. If we exclude from this number those which have been employed for experiments in which filtration, the use of high temperatures, chemicals, etc., might preclude the possibility of development, and those which, on account of infection or other causes, have died shortly after inoculation, it may be said that about 1,100 mice have yielded about 350 tumors, of which number about 300 have developed and caused the death of the mice, the remainder having recovered spontaneously.

Owing to extreme variability in the time of development of tumors it is often difficult to distinguish transient inflammatory masses from true tumors. The difficulties have been largely overcome, however, by the adoption of a system of diagrams or "charts" of the tumors made at stated intervals and kept as permanent records. The study of over 300 series of such diagrams, covering in some cases periods of several months, makes it apparent that whereas early inflammatory masses frequently make their appearance shortly after inoculation, they differ from true tumors, by either being absorbed, or ulcerating out in the course of two or three weeks. A true tumor, on the other hand, develops somewhat later, generally from two to four weeks after inoculation, and is, as a rule, more consistent than the inflammatory masses referred to above. The speed of development of a tumor is subject to enormous variations, the most rapid having shown a weight of ten to twelve grams within twelve days of their first appearance, others having required several months to reach a weight of two or three grams. In some cases an early developing tumor remains stationary for a con-

tumors in mice infected with the same material. By H. R. Gaylord, M.D.; G. H. A. Clowes, Ph.D., and F. W. Baeslack, B.A., *MEDICAL NEWS*, January 14, 1905.

Preliminary communication regarding an immune body capable of inhibiting the development of cancer in mice (adenocarcinoma, Jensen). By G. H. A. Clowes, Ph.D., *Bull. Johns Hopkins Hospital*, Vol. XVI, No. 169, April, 1905.

¹ Received for publication, July 15, 1905.

² Contribution No. 31 to the Publications from the New York State Cancer Laboratory, H. R. Gaylord, G. H. A. Clowes and G. N. Calkins.

³ Preliminary report on the presence of an immune body in the blood of mice spontaneously recovered from cancer (adenocarcinoma, Jensen), and the effect of this serum upon growing

siderable period and subsequently either goes on to full development or retrogresses and eventually entirely disappears, nothing but a small residue of connective tissue being found at autopsy.

It is very difficult to determine exactly what constitutes a spontaneous recovery from a true tumor. All early inflammatory swellings are, of course, excluded, as, also, small indefinite grains which make their appearance for a short time only. We have for the present adopted as a standard the presence of a growing tumor not less than three weeks after inoculation, reaching at some period of its development a volume of 20 cubic millimeters. The recovery from such a tumor may be said to constitute a true spontaneous recovery, whereas the recovery from smaller tumors must be designated as somewhat doubtful.

1. *The Re-inoculation of Mice Spontaneously Recovered.*—Up to the present date 30 mice which have recovered spontaneously of genuine tumors or have been cured of their tumors by serum injection have been re-inoculated, and of this number 10 have been inoculated for the third time. In no case has a tumor developed as a result of re-inoculation on a mouse which had previously recovered from a true tumor, as designated above, whereas mice which had either shown nothing on the first inoculation or only a rapidly subsiding inflammatory process have produced tumors.

One group, 209, including eight mice, of which seven—A, B, C, D, E, F and H, were re-inoculated, is of particular interest and may be selected as an illustration of this point. On March 5 this group was inoculated for the first time with normal cancer macerated with salt solution in the proportion of 1:3, each mouse receiving $\frac{1}{2}$ c.c. subcutaneously in the back of the neck. On March 31 A had a tumor the size of a pea which had first been recognized on March 16. On the same date (March 31) E and H had tumors of slightly smaller size but fully equal to the requirements enumerated above. An examination of the chart book for this period shows that in the case of these three mice, A, E and H, the tumors which first appeared about ten days to a fortnight after inoculation had reached a maximum about March 31, twenty-six days after inoculation, and had then steadily diminished in size until between April 21 and April 30 they had all three practically disappeared.

Of the five remaining mice of this series, G died on April 10, and the four mice, B, C, D, F, never showed true tumors. The seven survivors were re-inoculated June 2, three months after the first inoculation, with a tumor which was more virulent than that previously employed. An examination of the chart book on the day of writing this paper (June 26), twenty-four days after the second inoculation, shows that A, E and H have no tumors, B, C and F have fair-sized growing tumors and D is dead. It will

thus be seen that the three mice which recovered from true tumors on first inoculation now possess apparently an immunity against further inoculation, whereas the three which failed to show tumors on the first inoculation now succumb to the more virulent material.

Lot 209 was one of several series re-inoculated on or shortly before June 2. In all, 66 mice, 15 of which had recovered spontaneously from true tumors, and 12 from questionable tumors, were re-inoculated on this occasion. At the date of writing this paper, twenty-six days after inoculation, some 17 tumors are found to be developing in the entire series, some of which will doubtless recover spontaneously. Fifteen cases of unquestionable recovery show no tumors. In addition to these, one tumor is developing on a mouse which originally recovered from a tumor which fell slightly below the requirements enumerated above, and two other tumors are to be found on cases of questionable spontaneous recovery in which small grains made their appearance intermittently and for short periods. In an entirely different series a tumor occurred on re-inoculation of Mouse 179 E, which three months previously had recovered from a small, soft tumor about the size of a buckshot, but since the tumor in question was less than 3 mm., and only appeared for two or three days, we considered ourselves justified in excluding it from the cases of true spontaneous recovery and including it among those of questionable tumors. We have unfortunately been compelled to use a large number of the best spontaneous recoveries for the experiments which will be dealt with under the second head, but as all back series are now being re-inoculated, we hope to be able to report on a much larger number of experiments of this nature in the course of the next six months.

2. *The Admixture of Cancer Material Previous to Inoculation with the Serum of Recovered Mice.*—Our early experiments having made it appear probable that the serum of spontaneously recovered mice, when used in relatively large doses, possessed immune properties capable of interfering with the development of small tumors on direct injection, it seemed advisable to observe the effect exerted by a serum of this nature when admixed with macerated tumor materials previous to inoculation. For this purpose it was necessary to obtain a serum of sufficient virulence to produce an effect when distributed over a large number of cells, and to use a tumor sufficiently attenuated in its virulence to be susceptible to the influence of such a relatively diluted serum. It had been found by previous experience that young, small, actively growing tumors do not, on injection into fresh mice, produce tumors with any degree of certainty, and that for successful transplantations it is essential that a tumor should be, at least in part, necrotic. It had further been observed that large aggregates of cells produce tumors with greater facility than does material from which the connective tissue

had been removed by fine rakes or by filtering through coarse gauze.

At the time at which these experiments were commenced we had not a sufficient number of carefully charted spontaneous recoveries at our disposal to afford us any idea regarding the conditions under which the highest degree of immunity might be expected to develop. In some cases mice which had simply recovered from an inflammatory process were probably mistaken for true spontaneous recoveries and used as such, with more or less negative results, which

following experimental procedure was adopted: A suitable tumor was removed and admixed with salt solution in a sterilized mortar in the proportion of 1:3. Three equal portions were measured into three sterilized mortars. To the first normal serum was added; to the second, an immune serum, and to the third, salt solution. The mixtures were then thoroughly stirred and allowed to stand from one to two hours and subsequently uniform doses were injected into three series of mice. The difficulties enumerated above, more especially that of obtaining abso-

TABLE OF RESULTS.
Normal Series.

Serial Numbers.	Date of inoculation.	Number of mice used.	Rapidly growing tumors.	Slowly growing tumors.	True spontaneous recoveries.	Questionable spontaneous recoveries.	Survivors two months after inoculation.
192, 193.	February 22. }	66	24	1	10	14	30
195, 197.	February 24. }						
198, 199, 200.	February 28. }						
207, 208, ...	March 3. . . .	24	0	1	5	4	13
243, 246, 247, 248.	March 22. . . .	20	5	1	0	2	10
300, 303, 304, 307	April 26. . . .	23	4	6	1	2	10
Total.		133	33	9	16	22	69

IMMUNE SERIES.

Serial Numbers.	Date of inoculation.	Number of mice used.	Rapidly growing tumors.	Slowly growing tumors.	True spontaneous recoveries.	Questionable spontaneous recoveries.	Survivors two months after inoculation.
194, 196, 201.	February 22. }	29	5	2	3	10	22
	February 24. }						
	February 28. }						
204, 205, 206.	March 3. . . .	24	0	1	3	3	19
244, 245	March 22. . . .	14	0	0	0	3	5
301, 302, 305, 306.	April 26. . . .	22	0	3	0	2	16
Total.		89	5	6	6	18	62

SUMMARY.

	Normal Series.		Immune Series.	
Total number of mice employed.	133	Per cent.	89	Per cent.
Rapidly-growing tumors.	33	24.8	5	5.6
Slowly-growing tumors.	9	6.8	6	6.7
Total tumors.	42	31.6	11	12.3
True spontaneous recoveries.	16	12.0	6	6.7
Questionable spontaneous recoveries.	22	16.5	18	20.0
Total spontaneous recoveries.	38	28.5	24	26.7
Survivors after two months.	69	51.9	62	69.7

are, however, included in the experimental series tabulated below. Another point regarding which we have at present very little information, concerns the period after spontaneous recovery, when the maximum degree of immunity may be found, and on account of the extreme delicacy of the reaction, it is to be expected that great difficulty will be experienced in throwing light on this point.

In order to compare the relative effect produced by the serum of suitable spontaneous recoveries, and of comparable normal mice, the

lutely comparable uniform materials on account of the presence of small aggregates of cells, materially influenced the results and may have had something to do with the appearance of some tumors in the immune series. However, an inspection of the accompanying table shows a distinct advantage in favor of the immune series.

A summary of the experiments of this nature carried out from February 22 to April 26 shows that of 89 mice employed in the immune series, 5.6 per cent. developed large, rapidly-growing

tumors, and 6.7 per cent. slowly-growing tumors, giving a total of 12.3 per cent; whereas of the 133 mice employed in other series, including normal serum, cachectic serum (derived from dying tumor mice), and salt solution, 24.8 per cent. showed large, rapidly-growing tumors and 6.8 per cent. slowly-growing tumors, giving a total of 31.6 per cent. There appeared to be rather more true spontaneous recoveries in the normal series than in the immune series, but the figures in question, 6 in 89 and 16 in 133, are rather too small for any positive conclusions.

It is of particular interest to note that two months after inoculation 70 per cent. of those used in the immune series are still living, while 51.8 per cent. only of the normal and other series are living. To the actually recorded figures for tumors should be added four mice in the immune series and one in the normal series, which at autopsy showed small metastases in the lungs and other organs, but no external tumor.

We are inclined to believe that normal serum produces a slight effect as against salt solution, but the differences are too small to be considered at the present stage of our experiments. An inspection of the chart books of certain groups in which the immune serum produced the most marked effect, shows that not only was the number of tumors in the immune series smaller and the number of survivors larger than in the normal series, but also tumors made their appearance rather later in the immune series, a fact which is indicated in the tables by the relative proportions of 5 quick- and 6 slow-growing tumors in the immune series, as against 33 quick- and 9 slow-growing tumors in the normal series.

It is quite conceivable that a relatively feeble immune serum, when brought into contact with large aggregates of cells, is absorbed by those on the surface and fails to penetrate to the interior of the mass. The difficulty of producing tumors with small quantities of material or with single cells, makes it impossible, at present at least, to eliminate this source of error.

Whereas in the early series in which the macerated cancer materials were simply admixed with salt solution, mice were never known to recover spontaneously from tumors beyond the size of a large pea, there have been eight cases of recovery from remarkably large tumors in some of the later series in which the materials had been admixed with either normal or immune serum previous to inoculation. This is a point on which future experiments should throw further light.

Summary.—(1) Evidence has been afforded that mice which have recovered from cancer possess an active immunity against further inoculation. (2) By mixing cancer materials previous to inoculation with the serum of such spontaneously recovered mice, and comparing its effect with that of cancer materials from the same source mixed with serum from normal mice,

it has been shown that the former exerts an inhibiting effect, and that the percentage of tumors is much smaller and the percentage of mice surviving the treatment is larger in the immune than in the normal series.

Although we fully realize the fact that many more experiments must be undertaken, and that more positive results must be obtained before the presence of an immune body in mice spontaneously recovered from malignant tumors can be proved, we nevertheless feel justified in announcing again that all evidence thus far obtained in this most difficult and dimly-lighted field of research is distinctly in favor of the hypothesis.

FEMALE TYPE OF HAND IN EXTENSION: OR SIGMOID CARPUS.

BY ROBERT KINGMAN, M.D.,

OF BROOKLYN, N. Y.;

CLINICAL ADJUNCT TO THE DEPARTMENT OF NEUROLOGY AT LONG ISLAND COLLEGE HOSPITAL AND POLHEMUS MEMORIAL CLINIC;
ATTENDING NEUROLOGIST AT THE BROOKLYN CENTRAL DISPENSARY.

UNDER the direction of Dr. William Brown-ing, who suggested that there was apparently a natural difference to be observed in the male and female hand when held in a position of extension, the following facts have been collected and are recorded for the purpose of drawing attention to a characteristic position assumed in the extension of the hand and wrist by the female. For convenience in description, this position when present and the type of hand formed thereby will be referred to as the sigmoid carpus, although this term does not include all the anatomical parts concerned.

Briefly, by the sigmoid carpus is meant a double or S-shaped curve of the wrist and hand involving the portion of the upper extremity from the tips of the fingers to, and including, the lower ends of the radius and ulna. This S curve is made up of two parts; one being formed by flexion at the wrist where the carpus articulates with the ulna and radius, and the other by overexertion at one or more of the three finger joints (the first and second phalangeal and the metacarpophalangeal or knuckles). Viewed from above, the proximal arc of the S is convex and located at the wrist joint, while the distal arc is concave and located at one, two or three of the phalangeal articulations. From below the reverse, of course, presents; a proximal concave joined to a distal convex arc. The sigmoid carpus may best be observed, however, in profile from the ulnar aspect of the hand, the characteristic appearance being somewhat obscured on the radial border by the thumb.

Method of Examination.—In any examination of a patient one of the most common directions given is to hold out the hand for inspection as to the presence of tremor, and it seems as though this request conveyed a different idea to almost every individual, so various are the positions assumed in response. In observing the presence

of the sigmoid carpus, a uniform position should be maintained with each individual; he should be made to stand erect and then extend both hands in exactly the same manner—arms parallel to each other, the elbow in full extension and the dorsal surface of the hands on a level with the shoulders. Under these circumstances differences of position, both natural and acquired, will appear. These variations are of interest from a morphological standpoint, and further investigation may prove that they are of value also in the diagnosis of some morbid conditions. The different position of the joints and curves of the hand enumerated below, are the findings apparent on viewing a large number of hands from above and from the ulnar side of each hand, when held in the uniform position described.

Possible Positions of the Joints.—(I) Positions of the wrist-joint. (a) This may be held in full or partial flexion (the proximal arc of a sigmoid carpus). (b) It may be held in the position ordinarily considered that of extension in which the hand and forearm are in a straight line. Anatomically, however, this position is just half way between the extremes of possible flexion and extension at the wrist-joint, and, as will be shown, constitutes the masculine type of wrist in extension. (c) A position of hyperextension at the wrist is also possible; as a matter of fact this is practically never seen in the examination of hands in extension. (II) Positions of the finger-joints. (a) One or more of these three may be hyperextended; this condition when present forms the distal arc of a sigmoid carpus. (b) These joints may be in the position ordinarily thought of as extension, the dorsum of the hand forming a straight line with that of the fingers. The hand and fingers thus appear level, and this position of the fingers goes to make up the masculine type of hand in extension. (c) The joints may be flexed to a greater or less degree, causing the dorsum of the fingers to appear convex from above.

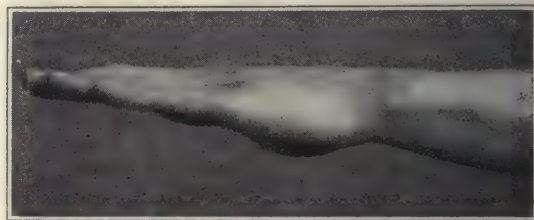
Varieties of Dorsum.—A. The dorsum of the wrist (carpals and ends of radius and ulna) may appear from above and from the side as either convex, concave or level. When convex (Ia) the wrist is in flexion and the type is that of the female. When level (Ib) the wrist is in ordinary extension and the type is that usually seen in the male. The concave dorsum (Ic) is hardly ever seen here. B. The dorsum of the hand (metacarpals and phalangeals) may likewise be either convex, level or concave. Least frequently seen is the convex dorsum (IIc); it is hardly ever found normally in the female, and even its occasional appearance in the male is usually the result of rheumatism or occupational influence. Rough, heavy work with the hands and fingers determine its presence, and also traumatism such as result in the "baseball" finger. Coming now to the level and concave types (IIb and a), extended observation has shown that the

level formation is so frequently found in males and the concave in females as to be in fact apparently the respective types for the sexes.

It is a concave dorsum of the hand formed by hyperextension of the finger joints, and making up in connection with a convex and flexed wrist the full sigmoid carpus, to which attention is called, as being present normally in the majority of women, and conversely not often seen in men unless for special or exceptional reasons. The masculine type of hand in extension shows a level dorsum both of wrist and fingers, so that the forearm, wrist and hand, including the fingers, appear upon the same level when held out.

Examination of Adults.—A series of healthy individuals, thirty males and thirty females, of varying ages between twenty and sixty years, was examined with the idea of ascertaining the position in which their hands were naturally held in extension, and the difference, if any, between the sexes on this point. They were taken in regular order from dispensary, private practice and other sources without picking or choosing, except that some subjects were excluded on account of deformity from rheumatism and injury.

Fig. 1.



Normal male type; forearm, wrist, hand and fingers in a straight line.

Of the thirty adult males, 4 presented a convex dorsum; 22 the level, or masculine type of dorsum, while only in the remaining 4 was a concave dorsum present in the hand, which, with a flexed wrist caused these few to exhibit the full sigmoid curve.

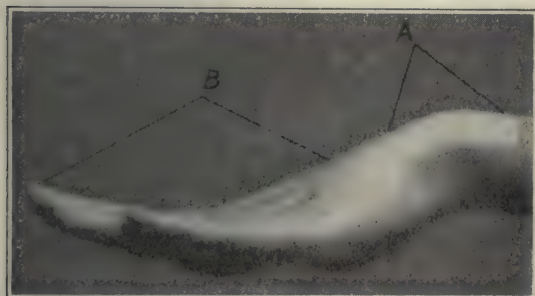
Of the thirty adult females, 1 (formerly rheumatic) presented a convex dorsum of the hand; 3 showed the level or masculine type of hand and wrist, while the remaining 26 showed the full sigmoid curve more or less pronounced, and made up of a dorsum concave at the hand with a flexed wrist. About 85 per cent. of both males and females, therefore, presented the type of hand believed to be normal for the respective sexes.

It should be stated in this connection that half of the subjects in the female group were taken from the working classes and half from the leisure. Among the latter were found the hands exhibiting the most concave form of dorsum and the most pronounced sigmoid curves in full, while the less concave types of dorsum and the less striking forms of sigmoid carpus were found among those more accustomed to manual labor.

This would indicate that while external influences may hinder the development, or later, change the amount of extension at each of the phalangeal or at the metacarpo-phalangeal joints, the sigmoid carpus will still remain as a characteristic and permanent finding in the female.

Examination of Children.—In view of the above facts it became of interest to learn whether the sexes are similar in childhood as to this con-

Figs. 2 and 3.



Normal female type, right and left: showing the double or sigmoid curve, proximal at A and distal at B. The latter half of the curve is formed by hyperextension at the metacarpophalangeal and at each of the interphalangeal joints, and shows marked curving of the fingers.

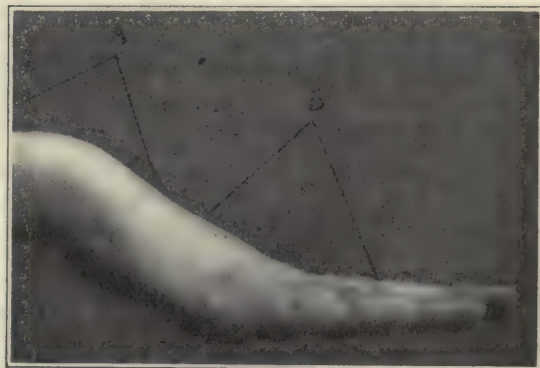
formation, and, if so, at what period the differentiation begins. For this purpose 300 school children were examined; 50 girls and 50 boys of the age of five years, a like group at the age of ten, and a third at the fifteen-year period. The following table shows the number of those of each sex in whom the sigmoid carpus was found in one or both hands at the three age periods here indicated. And the results show a variation of much interest.

AGE.	SEX.	SIGMOID CARPUS. (Bilateral.)	(Unilateral.)
5 years. . . .	50 M.	12	0
	50 F.	10	4
10 years. . . .	50 M.	10	1
	50 F.	18	9
15 years. . . .	50 M.	4	6
	50 F.	29	4

It will be seen that the sigmoid carpus was present in both hands in 12 of the 50 boys and in 10 of the 50 girls at the five-year period; unilaterally also in 4 girls. In the ten-year group the sigmoid carpus was observed in 10 boys and in 18 girls on both sides; and in 1 boy and 9 girls unilaterally. At the age of fifteen years only 4 boys out of 50 presented the feminine type of hand on both sides, while in 29 of the 50 girls it had been thus developed, 6 boys and 4 girls of this group also showing it in one hand only. This progressively increasing appearance of the sigmoid type in females was, as might be expected, practically in direct proportion to the increase in those presenting a concave dorsum at the hand. Flexion of the wrist (the other factor in the make-up of the sigmoid curve) was present, of course, in all those recorded above; and it may also be stated that it was absent with very few exceptions in all the others, *i.e.*, those not showing the full sigmoid curve.

Besides these 300, a number of other children under the age of five were examined; it was difficult to induce these to assume a uniform position, but many of those of both sexes who could be made to extend their hands satisfactorily, either presented the feminine curve or simulated it because of the amount of adipose tissue present about the wrist and hand at that time of life. The gradual change with growth and assumption of a concave dorsum and flexed wrist here described as the feminine type is, however, entirely independent of any fleshiness of the parts.

Fig. 4.



Variety of female type showing hyperextension at the metacarpophalangeal joint only, the fingers being straight.

Bilateralism.—In the 60 adults recorded, each individual showed practically the same type of hand on both sides. In the children examined a certain proportion of each age group presented a different type on either side. The figures for this finding were as follows: at five years, 1 boy and 6 girls; at ten years, 2 boys and 11 girls; at fifteen years, 10 boys and 4 girls. A reference to the table will show the number of these who exhibited a full sigmoid carpus in one or the other hand, though the figures appear to indi-

cate nothing definitely on the subject of bilateralism. It may be suggested, nevertheless, that the girls of the unilateral groups in the table may have been in process of developing the sigmoid type, the latter appearing in one hand earlier than in the other; while of the same groups of boys these individuals may have previously presented the sigmoid type in both hands and have been at the time of examination acquiring the masculine type in one hand before the other. In answer to the question which may arise as to whether the sigmoid carpus was found to predominate in the left or in the right hand in the unilateral groups, the record shows nothing distinctive at any one of the three periods; taking these as a whole, however, its appearance was found to be about evenly divided between the two hands.

Many external influences may cause the concave dorsum and consequently the feminine type to be lost either partially or wholly, or increased, in one or both hands. Change in type by alterations in the flexion of the wrist due to external causes have not been so frequently observed. But aside from such variations as may be caused by disease, injury or occupational influences the sigmoid carpus appears to be a constant anthropological finding in the majority of adult females. The causes noted as leading to a disappearance or lessening of the feminine type in women are rheumatism, obesity, senility and continued use of the needle in sewing, besides accidents of various sorts. On the other hand, piano players develop this form of hand to a marked degree, and a young man whose fingers could not be extended beyond a slight degree of palmar flexion (convex dorsum) was able after a year's exercise on the piano to double his fingers well back at any or all of the phalangeal joints, and presented at this time a well-developed type of the female form of hand.

Some men who in ordinary extension present the level form of dorsum can produce a concavity at will, thereby partially simulating the sigmoid carpus, while others cannot by any amount of exertion extend the fingers dorsally beyond a level. In those of either sex who do show the feminine type of hand, the latter will become more marked if extension is done fully and quickly, or if attention is called to the curves of the hand. It is interesting to note that men or muscular subjects, if told to extend the hand more forcibly, when the arm is already in extension, will almost invariably increase the extension at the elbow and not at the wrist or fingers on applying more force; while in women and nervous individuals the reverse is true, so that at the same command they will make an increase of flexion at the wrist and extension at the phalangeal joints rather than any change at the elbow, thereby accentuating the sigmoid carpus if the latter be present.

Racial differences appear to play some part in

the presence of the type of hand under discussion, though the exact figures have not been gathered as to this point. In the colored race both sexes of all ages who have been incidentally noticed have presented almost uniformly a concave dorsum; and an unusual proportion of males as well as all females have exhibited the sigmoid carpus. It may be stated also that the same facts have been found to hold true in the case of both men and women of the so-called "neurotic temperament" and in Hebrews, perhaps in the latter on account of the frequency of this disposition in that race.

The above findings have been made with the idea of simply establishing a characteristic difference in the male and female hands when in a position of extension under normal conditions. It is believed that further study and observation may show the absence of the sigmoid type in the female and its presence in the male to be of some diagnostic value in conditions of disease. It would appear that males who live and work and think on a plane of continued high tension often exhibit the feminine form of hand. Reversals of type have been observed in some cases of disease, but not to an extent or under sufficient conditions of control to allow any definite finding to be presented at this time.

ON DIPLOCOCCI AND PNEUMOCOCCI; THEIR PLEOMORPHISM, VIRULENCE AND MODE OF CAUSING DISEASE. AN EXPERIMENTAL STUDY.

BY E. PALIER, M.D.,
OF NEW YORK.

In examining stomach contents bacteriologically I frequently met with a microbe which greatly puzzled me. In a hanging drop and in smear preparations of the stomach contents of hypochlorhydria, no matter of what origin, a micro-organism resembling what is generally called the pneumococcus of Fraenkel was frequently noticed, but on making cultures from the same gastric contents this germ seemed to be absent.

Elsewhere¹ the writer of this has dealt with the bacteria of the stomach. There is so far nothing to rectify concerning what has been said there, but in addition to the bacilli described before I frequently saw in the gastric contents of hypochlorhydria a microbe whose identity I was then unable to establish and which, therefore, was not dwelt on. Some time ago, however, I came across a case of hypochlorhydria the gastric contents of which, in a hanging drop, as well as in smear preparations, showed only two kinds of micro-organisms, yeast cells and a diplococcus, and on making cultures, there were again only two kinds of micro-organisms, yeast cells and a short bacillus.

We shall first describe the cultural peculiarities of the microbe in question. On agar plates in first cultures there are formed in about thirty-

six hours, at a temperature of about 35° C., small, pin-point, whitish colonies. Under the microscope they are fine, transparent, round colonies, the center usually slightly lighter than the periphery and the border having somewhat of a crenate appearance. The colony looks under the microscope like a fine white piece of lace work. The colonies which grow along the yeast colonies resemble under the microscope a fine white border of lace work applied to a dark material. In agar stab there is a fine, delicate, threadlike growth along the stab, but no growth at the surface. The microbe in question also grows in nearly the same way on gelatine, which it does *not* liquefy. But as it must be kept at a comparatively low temperature the growth is slower and more sparing. In subsequent cultures the growth is faster and more abundant, covering in agar slant the whole surface of the agar and forming a thin, fine pellicle.

Its other peculiarities are: It does *not* coagulate milk and forms no indol; it is always non-motile and takes the Gram stain well and is easily stained in general. Morphologically the microbe in question undergoes a great change. As was said before, in the gastric juice it is a diplococcus, but in the first cultures it assumes the form of a short bacillus. Some of them have their ends juxtaposed, but many appear single. Their ends are usually rounded. They are about 1.5-2 microns in length and half that in width. In subsequent cultures, especially in the fifth and sixth, they become much longer, attaining double the length.

Similar colonies and bacilli, as was said before, I noticed in many cases of hypochlorhydria. I was at first under the impression that I was dealing with a diplococcus which can become a bacillus, and which is entirely different from what is called the pneumococcus of Franekel.

Bacilli similar to those which were formed in the first cultures just described I noticed in great abundance in the sputum of patients affected with simple catarrhal conditions of the air passages, such as bronchitis and asthma. I was under the impression that these microbes might be the cause of catarrhal affections of the mucous membranes, and tried their effect on house mice. But pure cultures of the third generation had absolutely no effect on mice. I injected several times big doses of agar cultures of the third generation, both subcutaneously and intraperitoneally, into mice, but the animals would soon recover from the slight shock and would seem to be the better for it. I captured two young house mice, which were apparently of the same litter. One was experimented upon and the other kept as a control. The latter died in three days, but the former, *i.e.*, the animal which received the injections, was lively and thrived. Both were kept in the same jar.

A last intraperitoneal injection was given the animal and it was killed by chloroform twenty-four hours afterward, while it was apparently in

good health. On dissection there was nothing abnormal. No foci of inflammation at the points of injection were found. The stomach was filled with a pulpy mass of digested semi-solid food. Smear preparations made from the blood and the various organs failed to show any microbes. Cultures made from the lungs on agar gave rise in forty-eight hours to microbes similar to those of the first cultures of hypochlorhydria described above. The stomach contents of the mouse, in smear preparations, showed diplococci and a Gram negative bacillus. In cultures from the stomach of the mouse in question two kinds of microbes were obtained; cocci which formed groups and looked much like staphylococci, and a Gram negative, slightly motile, bacillus which coagulated milk and had all the other characteristics of the *Bacillus coli communis*. Doubtless the staphylococci-like bodies were modifications of the diplococci found in the stomach of the mouse. The feces of the mouse were also collected and examined. In smear preparations there were also two kinds of microbes; one resembling the *Micrococcus lanceolatus* and a Gram negative bacillus. In cultures there were again two kinds of microbes, cocci and a Gram negative bacillus similar to those which were found in the stomach of the mouse.

To see whether the bacilli in question were present in other non-injected mice I dissected house mice which were caught in a spring trap and suddenly killed by having their necks broken in the trap. Similar microbes were found in the stomach contents and feces of these mice.¹ On examining several specimens of feces of healthy mice I found microbes resembling the *Micrococcus lanceolatus*, and in cultures found cocci. There was always also a Gram negative bacillus present in the feces, which in some specimens appeared to be the *Bacillus coli*, and in others the *Bacillus lactis aerogenes*. The cocci obtained in agar cultures from the stomach and feces of mice formed bigger colonies than those from the stomach of human beings. To determine the virulence of these microbes I injected young agar cultures of the first generation obtained from the feces of a healthy mouse into another mouse. These cultures as usual contained cocci which resembled staphylococci and the Gram negative bacillus mentioned before. But very strong doses of these mixed young agar cultures, injected both subcutaneously and intraperitoneally, had absolutely no effect on a mouse.

Surmising that the diplococci which were present in the stomach contents of human beings in hypochlorhydria found their way there from the mouth or the saliva, I turned my attention to the bacteriological study of the sputum of healthy people, in order to determine the nature of the microbe in question. In examining my

¹ The stomach contents of mice which were killed suddenly or died of disease did not react at all on Congo paper, even immediately after the death of the animals, thus showing the absence of free hydrochloric acid.

own sputum on many occasions I always found diplococci in it. Sometimes they formed chains which looked like streptococci, but on close inspection they could be seen to consist of pairs of cocci joined together and appearing like streptococci. There were also a few lanceolate diplococci resembling what is called pneumococci. In addition, there was found a Gram negative bacillus, which at first I mistook for the *Proteus vulgaris*, but on making cultures I found it did not liquefy gelatine and had the characteristics of the so-called Friedländer group of bacilli, among which is the *Bacillus coli*. On making cultures from the sputum on agar in Petri dishes, colonies precisely like those which have been described before, in connection with the gastric juice, were formed in about the same length of time, i.e., the colonies under the microscope had the appearance of fine pieces of lace work. The microbes of these colonies were Gram positive diplococci. In successive cultures in plain agar stab the diplococci gradually assumed the form of streptococci, and in the third generations the chains were quite long. The diplococci in question were the only Gram positive microbes found in cultures. In agar stab of the sputum there were usually two kinds of microbes growing along the stab and also at the top of the stab at the upper surface of the agar. One microbe consisted of Gram positive diplococci and the other of a Gram negative bacillus of the Friedländer group. In gelatine stab usually the same thing occurs. Once, however, nothing but diplococci grew in a fine, delicate thread along the stab; at another time yeast cells appeared and somewhat elongated cocci resembling fine bacilli, which were Gram positive.

I must say here, in order not to refer to the matter again, that by injecting the latter cultures into mice the same effect and the same microbes were subsequently obtained as from those cultures which had the form of typical diplococci, so it can be safely said that they differed slightly only in form, but were the same microbes as the diplococci. Thus, while in smear preparations of my sputum there appeared a few lanceolate Gram positive microbes, in culture there were only Gram positive diplococci. Again, while the colonies of the first generation of the gastric juice and of my sputum were similar, the morphology of the microbes differed somewhat. In successive generations they differed still further; those from the gastric juice assuming the form of bacilli, and those from the sputum that of streptococci.

I next injected into a house mouse about 1 c.c. of my sputum intraperitoneally. The same sputum when examined previously contained the micro-organisms referred to before. The mouse died in forty-eight hours. Death usually ensues in the following way: In about twelve hours the animal becomes apathetic and takes little nourishment. The depression gradually increases until the animal sits with the head down

and the eyes half closed, one eye, usually the left, closing first. Death ensues with the animal usually in a sitting posture. The death of other mice followed in about the same way.

On dissecting the animal immediately after death, the following was found: Slight infiltration of a gelatinous, white substance at the point of injection on the surface of the peritoneum. Liver greatly enlarged, congested, dark and very friable. Spleen also dark, congested and enlarged. Kidneys enlarged. Stomach entirely empty. Intestines also empty and greatly congested at some points. Stomach and intestines very friable and can be drawn out like mucus. Heart rather pale. Lungs shriveled up and occupying a small space in the chest cavity. In smear preparations from the blood of the heart, Gram positive microbes are found in abundance. The microbes vary from elongated, oval cocci to bacilli, the latter about three microns in length. Some of them assume the form of lanceolate diplococci. Capsules can be seen in all of these by appropriate methods of staining. Similar microbes are found in all the other organs, especially in the liver.

In making agar and gelatine cultures from the blood of the heart, by cutting it across with aseptic scissors and inserting the platinum wire needle into the cavity, colonies appear in about thirty-six hours at a temperature of 35° C. The bacteria of these colonies are in the first generation diplococci, like those obtained from the sputum. In the second generation they assume the form of streptococci. A third generation on blood serum yielded small, oval bacilli, like those of the first generation of the gastric juice described above.

Cultures of the second and third generations of microbes obtained from the dead mouse just described were again injected into other mice. The agar culture of the second generation was ten days old and the blood serum culture of the third generation was three days old. By scratching the root of the tail of a white mouse and rubbing in some of the above said cultures the animal died in five days. By deep subcutaneous or intraperitoneal injections the animal dies in about thirty-six hours; the death following in the same manner as detailed above. White mice were this time used because I was at this time unable to obtain the house mice. But the former and latter are practically alike.¹ I preferred to experiment with house mice and rats for reasons which will presently appear.

On dissecting the white mice the pathological changes were nearly the same as those in the house mice, into which sputum was injected, except that in the former there was no local inflammation at all at the point where the injection was made, and the lungs were slightly congested. There was also in one a sanguinous

¹ It appeared, however, from subsequent experiments that the house mice and rats, especially young ones, are more susceptible to the microbes in question than are the white ones.

effusion under the skin in the left side of the chest. The microbes in the blood and in the other tissues were more abundant and many of them assumed the form of bacilli, some attaining the length of about five microns. In short, there were oval cocci, lanceolate diplococci and diplobacilli and some single bacilli of the length just mentioned. All were Gram positive and had distinct capsules.

Agar cultures made of the blood of the heart cavity of the mice just spoken of yielded an abundant growth of small round colonies with a slight depression in the center. The microbes of this culture consisted again only of cocci, but had rather the appearance of staphylococci than of diplococci, which latter predominated in the cultures from the first mouse. On making a second blood serum culture from the agar culture, the diplococci form again predominated, though there were yet groups of cocci giving the appearance of staphylococci.

I next tried the effect of *cultures* obtained from my own sputum. Once I obtained in gelatine cultures from my own sputum only diplococci and yeast. On injecting such a mixed culture which was five days old intraperitoneally into a very small house mouse the animal died at the end of three days in the way described before. On dissecting the mouse fifteen hours after it died, the changes in the stomach and intestines were similar to those found in the other mice previously mentioned, but the changes in the liver and other organs were less marked. The microbes in the blood and other tissues were not numerous, and in smear preparations only Gram positive bacteria were present; all of them encapsulated and some of them being bacilli of some length. In fact their appearance was nearly the same as that in the previous mice. On making cultures from the blood, some of them contained only Gram positive diplococci, but some cultures contained in addition a Gram negative microbe of the Friedländer group. This was evidently a contamination, owing to the fact that the dissection was delayed for so many hours.

Another gelatine culture from my own sputum made subsequently happened to contain nothing else than Gram positive diplococci. On injecting this culture, which was three days old, into another big mouse subcutaneously the animal died in thirty-six hours, in the usual way. This animal was dissected at the end of twenty-four hours. The pathological changes in the various organs were similar to those in the other mouse just mentioned, but the bacteria in the blood and various organs were more abundant, and the intestines, which, as a rule, are always empty, contained in smear preparation numerous Gram positive encapsulated bacteria, the same in morphology as in the blood and other tissues. Cultures from this mouse also yielded Gram positive diplococci, but in addition some also contained a Gram negative slightly motile bacillus

of the coli group. It might be said here, *en passant*, that it is best to dissect the mouse immediately after it dies, when, with proper aseptic precautions, the bacilli of the Friedländer group will not contaminate the cultures.

Before proceeding further it must be said here that I have never had any serious illness of the lungs; never had anything which might be suspected as pneumonia, and at the time when the experiments with my sputum were carried out, as well as a long time previous to it and afterward, I was not even troubled with what is considered an ordinary cold, nor did I come in contact with pneumonic patients.

I next tried the sputum of a member of my family, a woman of twenty-nine years, who has been right along in perfect health. In smear preparations the Gram positive bacteria in this sputum, which we shall designate for convenience sake as sputum B, were more numerous than in my sputum. The lanceolate diplococci were abundant, especially on forcible expectoration, and in the morning soon after getting up more so than in the evening. On making cultures from sputum B, I found in them colonies of Gram positive diplococci which in every way were similar to those of my sputum. In addition there were colonies of Gram negative staphylococci. Such staphylococci as the latter, by the way, I also obtained from fresh butcher's meat which was afterward consumed in the household without any ill effects. They are evidently harmless saprophytes.

On injecting very big doses of such a mixed agar culture six days old into a house rat, both subcutaneously and intraperitoneally, no effect whatsoever was produced. Later I obtained more house rats, and an agar culture of my own sputum happened to be similar to that from sputum B. By injecting a big dose of this culture, when it was three days old, intraperitoneally into a house rat, and when it was five days old, into a white mouse, the animals were not thereby affected. Subsequently I injected 2 c.c. of my sputum into a young house rat and it died in two days. I next injected into the same animal intraperitoneally about 2 c.c. of fresh sputum B. The animal seemed to be a little depressed for about thirty-six hours, but in three days it seemed to be well again. On lifting it up and accidentally pressing its abdomen, a few c.c. of a greenish fluid spurted out from the point where the sputum was previously injected into the abdomen. Smear preparations from this fluid showed oval cocci and lanceolate diplococci, the same bacteria in fact as those found in the dead mice described before.

The animal soon completely recovered and another injection of fresh sputum B was given it, but this time it had no effect. The animal was kept under observation for a month and received six injections of sputum B, plus one injection of cultures from the same sputum.

To be brief, I will say that I found the injec-

tion sometimes had an effect and the animal would get into a depressed state, as said before, with regard to the mice. But in forty-eight hours the animal would recover again and be apparently in good health. Of the seven injections three had no effect, *i.e.*, including the first from the cultures and two others from the sputum, four had an effect, and the last caused the death of the animal in fifty hours. On two occasions when the injection had an effect the animal would give all the signs of suffering from excessive dyspnea. It would keep its mouth open; the breathing would be greatly exaggerated and sometimes so loud as to be heard at a considerable distance. But the state of depression where the animal would sit with its head down and toppling over from side to side also occurred. The state of noisy breathing would sometimes be followed by a state of semi-coma.

The last injection was given subcutaneously in the back, and an abscess was soon formed at the point of injection. The animal, as said before, died in fifty hours. On dissection there was only slight infiltration of a gelatinous substance on the outer surface of the peritoneum. The bacilli in the blood and tissues were the same as in the mice, but not numerous in smear preparations. In culture from the blood of the heart, Gram positive cocci were obtained which had more the appearance of staphylococci. The abscess contained numerous disintegrated Gram positive microbes. I say disintegrated, judging from their appearance. No cultures were made from the abscess, as I did not think it worth while. I was greatly puzzled to explain why an injection of sputum B into the same animal sometimes had no effect and sometimes had. But on examining the sputum microscopically before injecting it I noticed that when there were, in addition to the Gram positive microbes, also Gram negative bacilli, the sputum had an effect. Also when the sputum was not fresh, but kept for about twenty-four hours before being injected, it had a better effect. The expectoration obtained on deep coughing also seemed to be more effective. The Gram negative microbes of the Friedländer group, of course, evidently only helped the others, but were not in themselves the active agents for, on the death of the rat, as said before, only Gram positive microbes were found in smear preparations, and in cultures only Gram positive cocci.

Before proceeding further, we shall sum up what has been said before. Firstly, concerning the pleiomorphism of the microbes in question: (a) Microbes, which in the gastric juice had the forms of diplococci, assumed in successive cultures that of bacilli. (b) Sputum which in smear preparations showed Gram positive cocci and lanceolate diplococci, and also single bacilli, yielded in cultures only Gram positive diplococci. (c) Successive cultures of the same assumed the form of streptococci; (d) When

young cultures of diplococci, that is, cultures of the first generation, are injected into mice and the animals die, the blood and organs contain bacilli-like bodies, but hardly any round cocci. (e) When cultures are made from the latter they yield again cocci resembling very much staphylococci. (f) The colonies of the latter vary, being sometimes very small pin-point like, and sometimes bigger and abundant. Secondly, concerning the virulence: (g) Cultures of the third generation from the gastric juice had no effect when injected into a mouse. (h) Young cultures of the first generation obtained from a man who has never had any lung disease, when injected into house mice, cause their death in from thirty-six to sixty hours, depending upon the age of the cultures. Six-day, also three-day old cultures of the first generation from a healthy person have no effect on a rat. (i) Sputum from a healthy man injected into a house mouse kills it in forty-eight hours and in the blood and organs are found Gram positive bacteria. Cultures made from the blood of the same yield diplococci in the first and streptococci-like microbes in the second generation. When ten-day old agar cultures of the latter are injected into a mouse, or a white rat, the animal dies soon, and in the tissues are found again Gram positive bacteria having capsules. Cultures from the blood of some again yield Gram positive cocci. (j) Sputum from a healthy person injected into a house rat caused peritonitis. A few times it had no effect at all and a few times it had only a passing effect. The last injection caused the death of the animal in fifty hours with an abscess formation, and some Gram positive bacilli were found in the blood and organs. (k) Cultures obtained from the blood of the animal yielded big colonies of Gram positive cocci.

What are the microbes in question? At first I thought I was dealing with some microbe not hitherto known, but from its form and staining properties in tissues, there can be no doubt that it is the so-called pneumococcus of Fraenkel, which assumes different forms in the various media. Let us briefly consider the literature on this subject.

Pasteur² first described a microbe which he found in the blood of a rabbit into which he had injected the sputum of a child dead from rabies. Sternberg³ afterward, without knowing the work of Pasteur, called attention to the fact by injecting sputum of a healthy person into a mouse, it died and yielded bacilli which he at first thought were those of Friedländer, but subsequently he concluded they were the Fraenkel bacilli. Sternberg says, however, that he found four people in Philadelphia and a few in Boston whose sputum had no effect, and he thinks that the sputum of people who come from hot climates is not virulent. This explanation will be dealt with later.

As to the frequency of the so-called pneumo-

cocci in the sputum: Bein⁴ thinks they are found in about 30 per cent. of healthy people. Netter⁵ thinks they are found in about 75 per cent. of healthy people. Netter⁶ also found that his own sputum was sometimes virulent and sometimes not, and he thinks that when he attended pneumonia patients it was more often virulent. He also ascribes the change in virulence to meteorological changes. According to the same investigator the pneumococci are oval in form and do not have the shape of cocci. Talamon thinks they have lanceolate shapes. Netter admits, however, that they may assume the form of streptococci, and he tries to show the difference between these and real streptococci. Indeed, there has been quite a disagreement among investigators as to the form of pneumococci; some classifying them rather among bacilli than among cocci. That is probably the reason why Friedländer and Fraenkel's bacilli had been at first confounded. Fraenkel⁷ also finds that the sputum of the same healthy individual may vary in its virulence when injected into susceptible animals, and he argues therefrom that the pneumococci are not always found in the sputum of healthy people. According to the same author the virulence of the sputum of a healthy person, in comparison to that of a pneumonic patient, is in the ratio of one to three. None of the authors above mentioned seem to have experimented with cultures of sputum from healthy people, nor do they seem to have examined some of the sputum microscopically before they injected it.

Cultures obtained from the sputum of pneumonia patients have not given uniform results at the hands of different investigators. Thus while Fraenkel finds that such cultures when young, as a rule, cause the death of susceptible animals by pneumococci infection, Aufrecht⁸ found them sometimes without any effect on rabbits.

From the authors quoted above it would seem that the pneumococci in the sputum of pneumonia patients are more virulent than those in the sputum of healthy people. Furthermore, it can be seen that authors differ with regard to the morphology of the microbe in question.

From my own researches described before it can be plainly seen that the microbe in question is extremely polymorphous, and it can assume any form, or all the forms, which each author claims as peculiar to it. It will also be seen that when obtained from man it is virulent only in young cultures of the first generation, but not in later generations, consequently it is most of the time in the cycle of its existence a harmless microbe, and when it is pathogenic it may cause quite different affections when derived from the same source. For the reasons just stated it is evidently quite wrong to call it a pneumococcus. If it causes pneumonia only under very exceptional circumstances, why call it then by such a name? The name of *Micro-*

coccus lanceolatus is wrong because in cultures it seldom has a lanceolate form and, besides, it assumes other forms. *Micrococcus Pasteuri* is not advisable because Pasteur has hardly given any description of it. Fraenkel, who deserves great credit for his work in this connection, as said before, thinks this microbe has an oval form. This is so only occasionally. Fraenkel evidently saw only one phase in the growth of the micro-organism in question; but the fact is, this microbe assumes various forms, and referring to it as the pneumococcus of Fraenkel leads into error. In fact, many speak of the pneumococcus of Fraenkel without having a distinct idea of the microbe they are speaking about. I think the most appropriate name for it is diplo-lanceo-bacilli-cocci. This is a cumbersome name, it is true, but it characterizes the microbe in all its phases, as it is apt to assume any of these forms and in some media, such as sputum, for instance, all these forms may be met with. For the sake of brevity it can be referred to as d.l.b.c., and thus I shall refer to it in the future.

The difference of opinion among authors as to the frequency of this microbe in the sputum of healthy people is simply due to the fact that it has not been recognized. I can say most assuredly that the d.l.b.c. in one form or another is found more or less in the expectoration of every healthy human being. This is, of course, a broad statement to make, but having examined the sputa of numerous people I have never seen it absent; and in my own sputum I have always found it. In some affections of the lungs I have seen it greatly increased, especially in catarrhal and asthmatic conditions; in others I have sometimes seen it diminished or absent, namely, in advanced conditions of pulmonary tuberculosis, when the tubercle bacilli in the sputum are numerous.¹ Is there an antagonism between the d.l.b.c. and the tubercle bacilli? This is a question which cannot be answered offhand, and requires another series of experiments. It is best, therefore, not to discuss it here. It is a well-known law in biology that many species cannot thrive together in the same medium; some are necessarily stifled by the excessive growth of others. In examining sputum for tubercle bacilli I usually find that when the counter-stained bacilli are very numerous, especially the lanceolate diplococci, there is usually absence of tubercle bacilli, or if they are found they are few in number. The *Tetragonus*, on the other hand, seems not to be antagonistic to the tubercle bacilli. In my opinion the d.l.b.c., which are our habitual hosts, perform rather a useful function, something like the leucocytes. It would not be reasonable to suppose that, even

¹ The author is fully aware of the so-called mixed infection theory of pulmonary tuberculosis, but it has no real foundation. A few days ago the author received the sputum of an advanced consumptive, which was loaded with tubercle bacilli, but showed no d.l.b.c. An injection of it into a house rat and into a white mouse has not so far caused their death. The same absence of d.l.b.c. was noted in other sputa of consumptives. A detailed study of this subject will be made elsewhere.

admitting Netter's estimate, at least about 75 per cent. of us carry within us germs which at any moment may become virulent enough to cause pneumonia. Netter, as mentioned before, thinks that the virulence of these microbes may depend on meteorological changes, but it is hard to see how meteorological changes can effect a microbe. There is no analogy of it anywhere in bacteriology. Sternberg's statement that the sputum of those who come from warm climates is not virulent is hard to explain. Furthermore, the statement usually made that when one comes in contact with pneumonia patients the sputum is apt to be more virulent than otherwise, is not borne out by my own experiments, for, as said before, neither during the time of my experiments nor previous to it did I come in contact with pneumonia patients, nor did I ever have any affection which may resemble this distinct disease.

The fact is that by injecting sputum one never knows the quantity of microbes one injects, and the quantity in this case makes a great difference. It is also a great difference whether the viscid expectoration is injected or the fluid saliva. Deep subcutaneous injection in the back also seem to have a better effect than intraperitoneal injections. The varying effect of sputum B on the rat heretofore described can be explained in such a way, as the sputum was obtained at intervals of a few days, and the person from whom it was obtained was right along in perfect health, and the meteorological changes were apparently not great. The above explanation is the only reasonable one, I think. This probably also holds good for the cases of the authors who found that the sputum varied in its virulence when injected into susceptible animals. The best way is to experiment with cultures, and these, as stated before, have given me uniform results.

If we compare my experiments with healthy sputum with those of Fraenkel with the sputum of pneumonic patients, it seems that cultures from the latter are, on the whole, not more virulent than those from the former, for Fraenkel found that five days' old cultures from pneumonia patients lost their virulence. If we also take into consideration the above detailed experiments with the rat, it would seem that, on the whole, the sputum of healthy people, as well as that of pneumonia patients, cannot cause pneumonia—which must be considered as nothing else than a general infection—in animals very resistant to the so-called pneumococcus. The rat mentioned above died with an abscess formation, and as said before, there were only few microbes in the blood. According to Gamaleia¹⁰ this is usually the case when the animals are more resistant to the microbes in question. This also seems to be the case when the microbes are less virulent.

As far as such factors as exposure to cold, etc., are concerned, which are said¹¹ to play an

important part in predisposing the individual to the attacks by these germs, I must say, that when I injected into mice non-virulent cultures, such as those of the third generation of the sputum and exposed the animals to cold by leaving them in frosty weather for a reasonable time so as not to freeze them to death entirely, this had no effect on them. But when I injected virulent cultures the animals died even if they were taken good care of.

From the above it seems we are justified in concluding that neither the sputum or the cultures therefrom of healthy people, nor of those suffering from pneumonia, are virulent enough to cause pneumonia, that is, general infection, of man, who is considered among the most resisting animals to this microbe. In order to do so, the pneumococci, or as I call them, the d.l.b.c., must pass first through an animal most susceptible to them, like the house mouse, for instance, whereby the virulence of these germs is greatly enhanced. And hence mice, in my opinion, are the main factors, if not *the* factors, in causing pneumonia. According to Gamaleia¹² some epidemics of pneumonia in man are associated with epidemics among rats. But I wish to go a step further and say that mice, which are far more susceptible to this germ than rats, are usually the cause of it. They surely occasionally get inoculated with human sputum and either through their feces or after their death spread the virulent germs which may cause disease in the most resisting animals. This is a frequently overlooked factor.

Clinically, pneumonia has never been proven to be so contagious from man to man as diseases like diphtheria, scarlatina, etc. But we have cases where the disease evidently originated from air coming from cellars.¹³ Doubtless the air was laden with germs from decomposing discharges from rodents. Hence the reason why dwellings with defective sanitary conditions breed the disease, because the inhabitants inhale the virulent germs from the decomposing discharges, or the decaying body of rodents. [After the above was written the author found the body of a dead young mouse on the floor of a room in a public place where many sick people pass. On dissecting the mouse the pathological changes in it were similar to those described before, and the blood showed in smear preparations numerous Gram positive d.l.b.c. No comment on this fact is necessary.]

But the sputum of healthy people, as well as the first cultures therefrom, may cause local inflammation in animals less susceptible to this germ. Hence abscesses, peritonitis, etc., in human beings when the d.l.b.c. are found, are probably caused by the less virulent germs derived from man. These germs will have no effect on man when the mucous membranes, or the other tissues, are intact, but where there is a break of surface they may cause local inflammation. Hence the fact that in brawls the one who hits

the other in the mouth usually gets an infected wound of the hand.

From what has been said above, it will be seen that the current method of diagnosing pneumonia bacteriologically by making smear preparations or cultures from the sputum or by injecting the same into a mouse is valueless. Admitting even Netter's estimate that it is found in 75 per cent. of healthy people, such a method is only misleading. The only reliable method is to obtain cultures from the blood of patients suspected to have this disease, as these microbes are not found in the blood of healthy people. Furthermore, the cultures must be virulent to mice.

From the above experiments it would seem that active immunization with these microbes is impossible. This is, indeed, in accord with clinical experience, as one may have several attacks of pneumonia. It must also be added that the pneumococcus produces in many animals simply general septicemia, but hardly any lung trouble.

In conclusion I will say, that the microbe in question is frequently found in the stomach in hypochlorhydria, but it cannot be obtained in cultures from cases of hyperchlorhydria, because it cannot thrive in an acid medium.

321 East Thirteenth Street.

- 1 Medical Record, Nov. 19, 1904.
- 2 Pasteur, Bulletin de L'Academie de Medicine, Jan., 1881.
- 3 Sternberg, American Journal of the Medical Sciences, July, 1885.
- 4 Nothnagel, Specielle Pathologie und Therapie, Croupöse Pneumonie.
- 5 Netter, Le Bulletin Medical, May 1, 1887.
- 6 Archives de Medicine Experimentale, 1890, p. 678.
- 7 Fraenkel, Zeitschrift für klin. Med., 1888, p. 406.
- 8 Aufrecht, Nothnagel's Spec. Path. and Ther. Loc. cit.
- 9 E. Macé, Traité de Bacteriologie, p. 521.
- 10 Gamaleia, Annales de L'Institut Pasteur, 1888, p. 440.
- 11 Jaccoud Bulletin Medical, May 1, 1887.
- 12 Quoted by E. Macé, loc. cit.
- 13 Pepper System of Medicine, Pneumonia.

REMARKS ON DIGITALIS TREATMENT.

BY FRITZ SCHWYZER, M.D.,
OF NEW YORK.

DIGITALIS is, without question, one of our most valuable drugs. In heart-cases it prolongs the state of compensation and preserves life as long as it is worth living by increasing the time of its usefulness, not merely lengthening the misery of its termination. During acute diseases its use prevents the heart dilating, and its action is directly life-saving in a great many cases, as for instance, in pneumonia. And all this in spite of the fact that digitalis is uncertain in its dosage and indication. The plants vary greatly in strength, according to the location of their growth and various other conditions beyond our control. The dried leaves weaken with age sometimes to one-fourth of their strength when first dried. Leaves recently dried show in September a much stronger effect than the same leaves would show in May of the following year. One could almost make a scale of dosage for each month were there a standard of strength from which to start. Thus we grope in the dark with our digitalis prescriptions, and in each case have to push the

administration of the drug far beyond the desirable limit, if the patient does not exhibit the expected result. Many times we stop its use with these shadows of doubt in our minds: Did the patient really derive no benefit from our medication, or was the digitalis not good? In our hospital work we can prescribe with more confidence than in private practice if a yearly supply of fresh leaves is bought every autumn. In a few days the strength of the drug can be ascertained and by gradually increasing the dose toward spring, we have a fair idea of what we are doing.

Digitalis is used chiefly in three forms, viz., infusion, powder, and alcoholic extract or tincture. The alcoholic extracts are possibly less harmful for the stomach, but are generally considered unreliable in their effect. In New York about fifty to seventy-five per cent. of the prescriptions call for infusion, fifteen to twenty-five per cent. for alcoholic extract or tincture, and only a few for powdered leaves or pills. Prescriptions for digitaline, digitoxine, etc., are less frequent.

We are at a loss even as to the indications for using the powder or the infusion. Krehl thinks it a matter of personal inclination to prescribe either powder or infusion. He considers the powder stronger than the infusion, because the former contains all the principles, while in the infusion most of the digitoxine, which is insoluble in water, is left in the residue. He recommends powder when a rapid effect is desired, infusion where a mild result is looked for, powders of two grains to be taken three to four times a day, infusion of fifteen grains, in twenty-four or thirty-six hours. I always try to get along with small doses, one to two grains twice or three times a day have a sufficient effect, provided they are given in time, i.e., as soon as the heart shows the slightest effect of the strain. In chronic heart-cases it is usually necessary to continue with very small doses as soon as the desired effect, the amelioration of the circulation has been reached. These small doses, one-half grain two or three times a day, given in pills after meals, have no ill effect on the stomach and can be continued for months. The infusion is much more nauseating than the pills, in many instances the improvement of the circulation caused by the infusion is more than upset by its prejudicial influence on the digestive organs.

For many years there has been a strong desire among physicians to have the active principle of digitalis isolated from those responsible for the poisonous effect of the drug. A number of digitalis alkaloids, etc., have been isolated. Schmiedeberg found four main principles: digitonine, or soluble digitaline, insoluble digitaline, digitaleine and digitoxine. His crystallized digitoxine is soluble only in chloroform and alcohol; it irritates the stomach very much, and, subcutaneously, causes painful infiltration or local necrosis. The glycoside digitaline cristallisée Nativelle

was recommended by Potain and Huchard. The latter uses it whenever he prescribes a digitalis preparation. My experience with it is limited, but many authors believe that Digitaline Nativelle is not the chief principle of digitalis.

We must have the active principle of digitalis as *one* chemical body which must be constant in composition and effect. It must contain all the valuable properties of the fresh leaves. We need this pure principle as a standard, we must be able to note our experiences from a standard measure in our histories, even if, afterward, we can treat our cases with our empirical doses of the powder. We should be able to buy digitalis leaves of a known strength, after samples of the powder have been analyzed for a percentage of pure principle. The pure isolated principle should be "injectable" and non-irritating. All of these requirements seem to be fulfilled in a new product, the soluble digitoxine, published by Dr. M. Cloetta, Professor of Pharmacology at the University of Zürich. A number of authors like Naunyn and Kottmann (*Münchener medizinische Wochenschrift*, No. 31, page 1413, 1904), Senator and Bibergiel (*Berliner klinische Wochenschrift*, No. 51, 1904), and Klemperer (*Therapie der Gegenwart*, 1904) make favorable reports of their experience with this digitoxine. Dr. Cloetta sent me a supply large enough for an extensive test and my results were good. I tried it under almost any condition in which digitalis is indicated; in all sorts of muscular insufficiencies of the heart, in chronic valvular troubles, in arteriosclerotic heart disturbances and in nephritis, also in acute diseases like pneumonia, typhoid fever, etc. I got the desired digitalis effect several times by injecting digitoxine into the muscles of patients who had already been given powdered digitalis, or fluid extracts per os, without any other result than that of nausea.

I found Cloetta's digitoxine superior to the digitaline and other digitoxines which are in the market. It can be used wherever digitalis is indicated. Per os it acts much more quickly than the powder, hypodermically (deep into the muscles) in a few hours, intravenously at once. It is not cumulative and its effect is not as lasting as that obtained from the powder. But the effect, once reached, can be kept by continued small doses. Its chief advantage is that it can be given hypodermically without much pain and without danger of infection, and that, in emergency, it can be injected into the veins with almost instant effect. The single dose of Cloetta's digitoxine is one-third milligram, corresponding to 0.1 digitalis. This dose can be given three times a day or oftener per os or as an injection. In emergency, for instance, in acute dilatation of the heart, I have given two-thirds milligram by injection three times a day for several days in succession until the danger was passed. Of late I start the digitalis treatment of new cases with digitoxine injections, using them as a measure, and when I get the desired result I keep it up

with small doses of the powdered leaves. Thus the treatment requires much less time, for instance, a few days for re-establishing the compensation, where otherwise a week would be necessary.

My experiments with Cloetta's and other digitoxines and with digitaline have given me the impression that there is still a field in which digitalis is not sufficiently employed and where it would be beneficial. I mean its use as a safeguard in chloroform and other anesthesia. Prevention is always much easier than cure. Why not give some form of digitalis before narcosis? In most cases it certainly would do no harm if the patient were given two grains of the powdered leaves three times in the day before the operation. Or a few hours before the narcosis one could administer two-thirds milligram digitoxine hypodermically, or at the beginning of the narcosis, intravenously. I tried this with several of my heart patients, where an operation was necessary, with very gratifying results. It is a mistake to wait with heart stimulation until the heart begins to fail—in narcosis as well as in pneumonia—and all the heart stimulants put together do not equal this one drug, digitalis, which in many instances would act if given in time.

54 East Fifty-eighth Street.

PARTIAL TURBINECTOMY FOLLOWED BY ACUTE OTITIS, MASTOIDITIS, SEPSIS, PARACENTESIS, MASTOIDECTOMY, LIGATION AND EXCISION OF INTERNAL JUGULAR VEIN; RECOVERY.¹

BY CHAS. H. KNIGHT, M.D.,

AND

JAMES F. MCKERNON, M.D.,

OF NEW YORK.

IN our routine work we are apt to lose sight of the risks attending what we call minor operations, until brought to realize them by a rude shock like that experienced in the following case: It is quite possible that similar cases, more or less serious, are not infrequent, since we seldom care to exploit our misadventures, and only our more brilliant achievements meet the public eye. In this connection may be recalled an interesting paper presented to this Association in 1904, by F. R. Packard, entitled, "A Study of the Fatal Results of Operations upon the Nose and Throat." We may be surprised at the small number of fatal accidents this author has collected, yet we are quite ready to accept one of his conclusions to the effect that "meningitis as a complication of intranasal operations should not be lightly regarded."

The narration of this history may be of advantage if it enforces a lesson of caution and conservatism, although we are not prepared to admit the absence of these qualities in this particular instance. The details of the ear complication are given by Dr. McKernon, who ultimately

¹ Read at a meeting of the American Laryngological Association, Atlantic City, June 1, 1905.

took charge, and brought the case to a successful termination.

It is difficult to trace the precise source of infection. The usual precautions as regards cleanliness and asepsis were observed. In scope and duration the operation of turbinectomy is not to be compared with others of almost daily experience. It did not seem that the patient suffered an excessive degree of surgical shock, and, so far as can be discovered, she was not subjected to any special exposure. We leave the solution of the problem to others, merely suggesting the possibility that certain pathogenic bacteria of unusual virulence find their opportunity in an organism of low resisting power. Under ordinary circumstances we successfully combat their encroachments; in conditions of depressed vitality they gain ready access, and pursue their destructive invasion with fearful and oftentimes fatal consequences.

The patient was a married woman, about twenty-five years of age, of rather nervous temperament but in excellent health, and, as afterward appeared, in the third month of pregnancy. She had never had any marked ear disturbance, except occasional tinnitus and slight impairment of hearing. Considerable nasal stenosis, excessive postnasal secretion, tendency to take cold, and above all, the existence of several cases of catarrhal deafness in her family, led her to seek treatment for her nasal condition. She was found to have a septal ridge opposite the inferior turbinate, running obliquely upward and backward and partially occluding the right inferior meatus. The middle meatus on the same side was blocked by a cystic expansion of the middle turbinate. Owing to the difficulty of engaging the saw in the septal overgrowth, it was decided to attack first the turbinate. Accordingly the anterior end of the latter was removed with the cold wire snare and nasal cutting forceps. It was necessary to make liberal use of cocaine (20 per cent.) and adrenalin chloride (1-1,000) in order to get satisfactory anesthesia, as the parts were very hyperesthetic and resistant. But little blood was lost, the patient was remarkably brave, and was able to go home in the course of an hour in fairly good condition. No intranasal plug was used; the nose was merely sprayed with mentholized albolene and a light pledget of sterilized cotton was placed in the anterior naris. The following day the systemic depression was extreme, and there was some febrile reaction on the second day. On the third day there was slight improvement in these particulars, but on the morning of the fourth day she was awakened by sharp pain in the right ear, which had troubled her somewhat the previous evening. In the meantime there had been more or less pain in the nostril but no bleeding, and there had been no nasal treatment except a few instillations of mentholized oil. In spite of the usual remedies the pain in the ear persisted, and a few hours later the drum ruptured. Only

a few drops of thin fluid escaped. Relief was partial and temporary. The same evening Dr. McKernon was called upon to incise the drum, as the discharge had ceased, the pain had returned, and there was some rise of temperature. The next day decided tenderness developed over the mastoid, which increased so rapidly that further delay was deemed unsafe, and a very thorough mastoidectomy was done within forty-eight hours after the tympanum had been freely incised.

At the time of Dr. McKernon's first examination, the right auditory canal was found partially filled with blood-stained serous discharge. The drum membrane was bulging over the whole posterior quadrant, and looked red and angry. There was a small perforation in front of the umbo through which the discharge had passed. The mastoid process was tender upon pressure. Gas was administered, a free incision was made in the posterior quadrant, and a smear was taken, which, upon examination, showed that infection was due to the streptococcus. Dry heat in the form of a hot-water bag was applied to the ear and mastoid, and warm bichloride irrigations (1-4,000) were used every two hours.

About forty-eight hours later the patient was found suffering acute pain in the ear. The bloody discharge was still present, and the temperature was 101° F. The systemic prostration was most profound, and the mastoid was exquisitely tender. At this time the operation of opening the mastoid was proposed and complete mastoidectomy was done. The cortex was very dark, and on exposing the mastoid cavity, an extensive empyema was found. Every cell had been invaded, including those in the zygomatic roots, and the medullary spaces posterior to the sigmoid groove. There was no exposure of the dura, but the whole inner table was of much darker color than is usually found, and especially the bone covering the sigmoid groove was almost black.

The patient bore the operation well, and, save for a rise of temperature eight hours afterward to 104° F., the eight days following were uneventful, the temperature never going higher than 101° F., and most of the time remaining below 100° F.

The flaps, however, did not heal kindly, and at the first dressing on the third day after operation, the stitches were removed and the wound left open. It was dressed again the following day and the soft parts were found to be bathed in pus, but there was not a drop of secretion from the bone cavity. The sigmoid groove was very dark in color, and there was not a vestige of granulation tissue present. The tongue was dry and heavily coated, and the patient suffered from extreme depression.

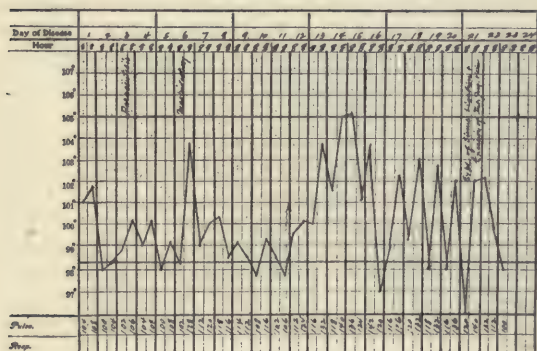
On the tenth day following the mastoidectomy, there was a sudden rise of temperature to 103.8° F. She complained of headache, and referred most of her pain to the vertex. During

the night the temperature dropped to 101.8° F., to rise on the following day to 105° F.

A diagnosis of involvement of the sinus was made, but owing to the extreme weakness of the patient, who had to be stimulated constantly, it was decided to wait for a time before operating. Clinical experience has taught us that those who are operated upon while the temperature is high, and the system markedly weakened, do badly, and a certain percentage of them never rally from the shock of the operation, while those who undergo the operation when the system has been supported and the temperature is lower, bear the shock much better, since the vital forces more readily respond when not encumbered by additional handicaps of high temperature and pronounced weakness.

On the twelfth day following the operation, a consultation was held with an eminent general surgeon, who said he thought the case was one of general pyemia, and that he did not believe any involvement of the sinus existed.

For the next five days all our efforts were directed toward keeping up the patient's strength. She was fed every two hours and given large quantities of water and stimulants, the temperature during this time ranging all the way from 104° F. to 97° F., as may be seen by the temperature chart, the characteristic curve of which is clearly indicative of pus.



On the sixth day following, making eighteen days from the time of the mastoid operation, the patient being stronger, and the temperature lower, 102° F., it was decided to operate. Chloroform was administered, and the sinus exposed from just above the bulb, almost back to the torcular. The bone covering it was very dark, nearly black in color. From the knee of the sinus backward, the dura was lusterless, and over a greater portion of its area, white or yellowish. It was opened freely and a clot removed from the knee, which extended backward toward the torcular for about two inches. Free hemorrhage followed, which was easily controlled by packing gauze into the lumen of the vessel. In the lower part of the vein was a disintegrated clot with pus. Owing to the presence of the latter condition, it was decided to expose, ligate and resect the internal jugular vein.

This was done, the lower point of ligation being below the clavicle, the upper point at the exit of the vein from the skull. The facial vein was also thrombosed for about an inch where it empties into the internal jugular, as were also both of the thyroid veins, which were ligated well beyond the thrombotic points and resected. There were a number of large glands along the course of the vein, which were removed. After resection of the vein, the lower end of the sinus was freed from a quantity of broken-down material. The wound in the neck was closed by a continuous suture, a drain being inserted at the lower angle. The patient bore the operation very well, the only stimulation being a hot saline enema during the latter part of the operation, and this was repeated half an hour after she was placed in bed.

The subsequent history was uneventful, there being only one rise of temperature on the second day, which was caused by a focus of pus in the neck, on account of which two of the stitches were removed. Healing was rapid, and the resultant scar smaller than might have been expected from the suppuration that at one time threatened the soft tissues in this region.

The findings of the pathologist in the specimens removed were that the clot in the vein, the walls of the vein, and the glands, all contained large numbers of streptococci. The fact that the walls of the vein are so impregnated in these cases, teaches us how important it is that the vein should be removed in its entirety, from its exit at the skull to the clavicle, or even lower, if necessary. For even though the vein be opened, and the clot removed, the wall of the vein and the sheath, containing, as they do, the micro-organisms of infection, if left intact, only serve to disseminate the poison still further through the system.

It is interesting to note that in this case there were no chills, nausea or vomiting throughout the entire course of the disease. Only twice did the patient complain of slight chilly sensations, but these sensations when present in a case like this are valuable diagnostic signs.

We were particularly fortunate in that the patient improved in strength during the few days prior to the second operation, as it gave us, so to speak, an elective time for doing the operation. If, however, such improvement had been absent, and the patient had not shown daily gain in strength, the operation would have been done early, as it is much wiser to operate upon these cases as soon as the diagnosis is made, provided the general condition permits.

Boston Consumption Show.—A tuberculosis exhibit for the enlightenment of the public will be opened in Faneuil Hall on December 28. It will give the people an opportunity to learn the methods of treating and preventing tuberculosis. The city of New York will contribute largely; in fact, it will be a double exhibition, consisting of material collected in Massachusetts and of the material collected in New York for a similar exhibit in that city.

MEDICAL PROGRESS.

MEDICINE.

Gastric and Duodenal Ulcer.—W. J. MAYO (*Journal A. M. A.*, October 21) considers chronic gastric ulcer a much more common condition than clinicians would lead us to believe. The small proportion found in American hospital statistics, he thinks, is an error due to less frequent autopsies. While statistics would seem to show that duodenal ulcer is rare, he thinks it occurs in a fair proportion of cases. He reviews statistics and gives the results of his own and of C. H. Mayo's experience in the surgery of these conditions. In 231 cases of gastric and duodenal ulcers seen since January 1, 1903, the duodenum was involved in 74 cases, 55 males and 19 females. Of the total 231 cases, 151 were what he calls surgical ulcers, involving all the coats, and this includes 68 of the 74 duodenal cases. What he calls medical of non-indurated ulcers are those that give undoubted clinical symptoms, but involve only the mucous coat, and may be difficult to detect even on operation. They include two varieties—the mucous erosion of Dieulafoy and the typical round, peptic and fissure ulcer. The Mayos find the fissure ulcer rather frequent. Of the total 231 cases, 80 were medical ulcers, 56 females and 24 males. Mayo notices the enlarged lymphatics in the neighborhood of the ulcer as a probable valuable diagnostic sign. He remarks also on the need of further study of these medical cases, especially in a diagnostic and operative point of view. There is danger of too much operation, especially with neurasthenic patients. Each individual case should be examined with a presumption against operation unless the indications are very clear. Among the problems of the condition is noted pyloric spasm, which, he says, is not due to the pyloric sphincter alone. There is also undoubtedly a contraction of the pyloric muscle without demonstrable lesion, and another not rare condition is "valve formation," in which a high lying pylorus is held taut by a short gastrocolic omentum. At present he does not advise operation in acute ulcer unless certain complications, such as hemorrhage and serious obstructions, compel its early performance. He does not advise it in chronic ulcer until careful and prolonged medical treatment has failed, and he strongly advises against it in neurotic patients with prolapsed stomach. It is advised in chronic cases with acute exacerbation and relapses affecting the patient's general health, in all cases of stagnation and retention of food from mechanical causes, and in cases of exhausting hemorrhages. The method of operation is described and discussed. Gastrojejunostomy has the largest field of usefulness, and next to it comes Finney's operation, which is specially suited to narrow strictures. Rodman's operation of complete excision of the ulcer-bearing pyloric end of the stomach with independent gastrojejunostomy will, he thinks, gain ground in the future, especially considering the possibility of cancer development.

Sanatoriums and the Eradication of Consumption.—Statistics overwhelmingly show, asserts R. C. MACFIE (*Lancet*, Sept. 30, 1905), that the sanatorium treatment of tuberculosis for the poor in England has produced no appreciable effect in decreasing the mortality of this disease. Though this fact be true, it is not the idea to abolish sanatoriums, but having acknowledged their limitation and subsidiary capacity to institute reforms of management and to

utilize them in conjunction with other measures. Under the present system sanatoriums save only 10 to 20 per cent. of lives treated. The reasons for this are that about 80 per cent. of the available beds are occupied by incurables, patients are discharged too early, and there is in force no systematic medical supervision of their after life. For sanatorium treatment to be a success it is absolutely essential that this be changed. A scientific and trustworthy system of selection should be organized; only such cases as are deemed suitable for a cure should be admitted; a system, whereby the after life of the patient is supervised, should be perfected; and favorable surroundings and healthy work provided. For this there seems only one solution, the establishment of industrial colonies. In this way sanatorium treatment will be rendered as effective as possible, but other measures, such as better food, better housing, more open spaces, establishment of educational dispensaries, along with notification, isolation, disinfection, and house to house visitation will do more to eradicate consumption than many costly sanatoriums.

Frequency of Symptoms of Typhoid.—G. TREUPEL (*Münch. med. Woch.*, Sept. 26, 1905) gives the following figures, showing the frequency of the various symptoms in typhoid fever: Facts in the anamnesis pointing toward typhoid, 75 per cent.; a typical fever curve throughout the entire disease, 46.7 per cent.; bronchitis with the onset, 48.3 per cent.; relatively slow pulse, 86.7 per cent.; general subjective well-being, 56.7 per cent.; typhoid tongue, 16.7 per cent.; angina, 58.3 per cent.; abdominal symptoms, 61.7 per cent.; a palpable splenic tumor, 86.7 per cent.; typhoid roseola, 71.7 per cent.; diazo reaction in the urine, 73.3 per cent.; positive Widal reaction, 90.6 per cent.; positive blood-culture, 92.8 per cent. It will be seen that the latter symptom is a very valuable one, particularly since it appears very early. In not a few cases it was possible to grow the bacilli from the skin lesions or from the urine.

Amputation at the Hip-joint with Report of Four Cases by Wyeth's Method.—J. SHELTON HORSLEY (*Am. Med.*, Oct. 21, 1905), after giving a brief history of amputation at the hip-joint, mentions five different methods of controlling hemorrhage. (1) Ligation of the femoral artery before division. (2) Aortic and abdominal tourniquets. (3) Compression of the common iliac artery through the rectum by means of a lever. (4) The elastic tourniquet as used by Wyeth. (5) Compression of the common iliac through an abdominal incision. He quotes Poppert as saying that 70 per cent. of all deaths from hip-joint amputation are from hemorrhage, and consequently regards the methods of controlling hemorrhage as most important. He favors the method of Wyeth. He also emphasizes the importance of combating shock both by precautionary measures, as blocking the nerves by injections of cocaine into their substance, and by the use of intravenous infusions of adrenalin as recommended by Crile. He reports four cases with three recoveries and one death. The fatal case was one in which operation was necessarily done in presence of grave shock. Two of the cases were for tuberculous disease of the hip-joint, and in both instances blocking the nerves with cocaine was resorted to, and, as a result, neither patient suffered from shock.

Atony of the Rectum and Colon, with Mechanical Methods of Treatment.—Atony of the intestine is a failure of the normal function of muscle coat. Ex-

perimenting upon dogs, T. B. TURCK (*Med. Rec.*, Oct. 7, 1905) extracted from the intestines, mechanically overworked, a toxin which when injected into other dogs produced fatigue and dilatation similar to that obtained artificially. During intestinal rest an antitoxin is formed which neutralizes the fatigue toxin both in vivo and in vitro. Atony and dilatation produce marked congestion of the abdominal circulation, which profoundly inhibits peristalsis. This leads to constipation, or constipation alternating with diarrhea, and this to the production of hemorrhoids. A frequent complication of hemorrhoids is rectal prolapse, which is noted especially where these atonic conditions are well marked. Usually the mucosa alone is involved. Rectal prolapse is frequently but a part of a splanchnoptosis, to which some individuals are more inclined than others. The diagnosis, in connection with history and symptoms, can be made accurate by examination of the feces observed during colonic lavage, and the reaction of the colon to distention. Drugs are useless as a cure. Surgery does not correct the atony, though obstructions must be removed. General gymnastics are only indirectly helpful. They may strengthen the abdominal wall, but do not increase peristalsis, or correct the atony. Enemata are useful for cleaning out the colon. They excite peristalsis, but do not correct the atony on account of the resulting fatigue. They rather tend to create the enema habit, and increase atony. High temperatures should be used for colonic lavage. The injection of air directly is helpful, but in atonic colicky conditions retention may follow, resulting in increased fatigue or atony. This is, however, a useful method if the air is removed through the tube by abdominal pressure and massage. By confining air in a rubber bag which has previously been introduced into the lower bowel, the degree of exercise by distention is under the direct control of the operator. Intermittent distention of the bags in the rectum or colon for a short period gives sufficient exercise and massage of the muscle wall to gradually restore the atony and fatigue of the muscle to a condition of normal peristalsis. If the colon is partly distended with air, then the rubber bag inserted, intermittent compression of an attached Politzer bag, causes vibration of the air in the entire colon to the cecum. This massage effect is also a valuable method of treating hemorrhoids, ulcers, proctitis, prolapse of the bowel, and associated pathological conditions of the pelvic organs. Results have shown the restoration to be permanent.

Periarteritis Nodosa.—Peculiar changes in the vessels are held responsible for the following symptom-complex: Chlorotic marasmus with chronic nephritis, rapidly progressive paralysis with severe muscular pains, constant palpitation of the heart, intestinal symptoms and slight rises of temperature with profuse perspiration. Only about forty cases have been described in literature. M. BERSE (*Münch. med. Woch.*, Sept. 19, 1905) has carefully studied one case and finds that an inflammatory exudate first appears in the adventitia of the vessels. Fibrin will deposit and the muscle cells of the media will gradually disappear. The vessel will eventually become thrombosed and the vessel walls yield, forming fusiform aneurisms. The symptoms all depend upon the localization of this process. As a rule, the vessels of the brain and lung are spared. The disease affects most frequently men between twenty and thirty-five years of age and runs an acute course, rarely lasting longer

than three to four months. An absolute diagnosis during life is possible only if there are multiple subcutaneous nodules, consisting of lime salts. Owing to the rapid formation of thrombi, there is no disposition to hemorrhage. Many different theories as to the etiology of these changes have been discussed, yet it seems probable that syphilis is the sole cause.

The McGraw Ligature.—A. J. OCHSNER (*Journal A. M. A.*, Oct. 21) reports his experience with the McGraw ligature since December, 1902, when he saw the method demonstrated by its inventor. He has used the method 156 times and has come to the following conclusions: "1. Anastomosis with the McGraw elastic ligature can be accomplished in a satisfactory way (a) between stomach and intestines; (b) between intestine and intestine. 2. The opening can be made any desired length. 3. It can be made without carrying infectious material from the lining of the stomach or intestine to the peritoneum. 4. It can be performed quickly. 5. It requires no special skill or ingenuity. 6. The patient shows very little, if any, shock after the operation. 7. The patients are relatively very free from pain, and can usually sit up in bed with the aid of a head-rest a few hours after the operation. 8. The method should not be employed in making a pyloroplasty. 9. It should not be used in making a cholecystenterostomy." Ochsner quotes some of the special directions of Dr. McGraw, and has formulated the method in eleven steps as follows: 1. A round rubber cord, 2 mm. in diameter, made of the best material, should be used. 2. A posterior row of Lembert sutures is applied. 3. A long straight needle, armed with the rubber ligature, is passed into the lumen of the intestine and out again at the desired distance, from 5 to 10 cm. away from the point of introduction. 4. While an assistant holds the intestine the surgeon stretches the rubber in the needle, and when quite thin draws it rapidly through the intestine. 5. The same step is repeated through the stomach. 6. A strong silk ligature is placed across and underneath the rubber ligature between the latter and the point where the stomach and the intestine come together. 7. A single tie is made in the rubber ligature after the latter has been drawn very tightly. 8. The silk ligature is passed around the ends of the rubber ligature, where they cross, and is tied securely three times. 9. The ends of the latter are released and cut off, being held by the silk ligature. 10. The Lembert suture is continued around in front until the point of its beginning is reached, where it will be tied. 11. Care must be exercised to prevent tying the rubber ligature too far backward and thus getting behind the posterior row of Lembert sutures. He mentions, as a special help in following these directions, the illustrations of the article of Dr. H. O. Walker in *The Journal A. M. A.*, Jan. 17, 1903, p. 166. One hundred and twenty-four cases in which this method of operating was carried out at the Augustan Hospital are tabulated and the causes of death in the fatal cases discussed.

SURGERY.

Scopolamine-Morphine Anesthesia.—Both GABRIEL SEELIG and EMIL RIES report (*Annal. of Surg.*, August, 1905) a series of anesthetics in which scopolamine-morphine was administered as an adjuvant. Though differing slightly as to dosage and time of administration, the results obtained by both authors conform favorably. Seelig injected hypodermically scopolamine-

hydrobromate, grain 1-100, and morphine, grain 1-6, one-half hour before the administration of the general anesthetic, which in this case was ethyl chloride-ether; whereas Ries, following the method of Korff, gave one-tenth milligram scopolamine and twenty-five milligrams of morphine, divided into three doses and injected two and a half, one and a half and one-half hours before the operation, chloroform being relied upon to complete the anesthesia. The last-named author has also employed this method successfully as a precursor to the induction of infiltration anesthesia with 0.6 salt solution. It seems, therefore, that the method of Korff has two purposes in view, *i.e.*, first, the intention to perform the whole operation under this anesthesia alone, and second, as a preliminary to anesthesia by inhalation of chloroform or ether; whereas in the method adopted by Seelig the combined drugs are employed solely as adjuvants. If the method of Korff is successful, the patient becomes sleepy after the first injection, is fast asleep after the second, and unconscious and insensible to pain after the third. The operation may then begin one-half hour after the last injection, and can proceed for hours without any other anesthetic. The patients lie quietly, with eyes open or shut, pulse often rapid, sometimes slow, respiration quiet, pupils rigid, either dilated or contracted, and muscles relaxed, though this may not be complete. The patient continues to sleep for about five hours after the last injection. There is no retching or vomiting, and when the patient awakes, food can be given immediately. If such a course is not obtained, then chloroform or ether become necessary to complete the anesthesia. The advantages claimed by both writers for the routine employment of scopolamine-morphine as an adjuvant to general anesthesia are, that the amount of the general anesthetic required is markedly lessened, the salivation and the excitement of the preliminary stage is avoided, the liability to vomit is greatly reduced, and the quiet and freedom from pain afforded the patient after the operation is vastly increased.

Penetrating Wounds of the Abdomen.—RANDOLPH WINSLOW (*Journal A. M. A.*, October 7) discusses abdominal wounds and gives a lengthy summary of cases treated at the University Hospital, Baltimore. He remarks on the occasional definiteness of the symptoms and insists on the importance of early laparotomy, in a well-equipped hospital if possible. The apparent exception afforded by military experience as to the propriety of prompt operation and in the prognosis of these injuries is noted and accounted for by the special character of the modern military projectile causing a lesser mortality among patients not operated on, and the greater danger of increasing the risks of infection in operation. These conditions do not exist in civil practice, and there the earlier the operation the better. Shock, being due to hemorrhage, is not a contraindication; laparotomy should be done at once and the bleeding vessels secured. He insists on the importance of a thorough search in all parts of the intestinal tube, as perforations are liable to be overlooked. Wounds of the stomach and of the solid organs and their special characteristics are noted. Among the cases reported one is of interest on account of the fact that the aorta was pierced by a 32-caliber bullet, making a slit in its anterior surface and an everted counter opening behind, the bullet then lodging in the third lumbar vertebra. These were the conditions found on autopsy, the patient having lived 122 hours after the occurrence of the injury.

Choice of Method in Operating Upon the Hypertrophied Prostate.—In a discussion upon this topic

WILLY MEYER states (*Med. Rec.*, October 7, 1905) that in the rank and file of prostatic surgical intervention should be urgently advised when the catheter must be given into the hands of the patient himself for regular use. The death-rate following operation is 5 per cent. and less, whereas the mortality due to pyelonephritis, resulting from self-catheterization, is surely much greater. To-day three useful operative procedures are in vogue, *i.e.*, suprapubic and perineal prostatectomy and galvano-caustic prostatotomy or Bottini's operation. Wherever the patient's condition, irrespective of age, seems to warrant it, prostatectomy should be done, since this procedure is more complete. The choice of route is largely a matter of individual inclination, but from present experience it seems justifiable to conclude that glands palpable per rectum and situated low, and hypertrophy of soft character in the early stages, frequently found to consist of smaller nodules, are to be attacked from below, whereas glands situated high and projecting well back into the bladder, tumors recognized by the residual urine or total retention and distinctly seen cystoscopically, and in patients with very foul urine necessitating bladder drainage, the suprapubic incision should be chosen. In the last-mentioned condition the gland should not be removed until the urine has cleared up under drainage. The preservation of the sexual function is important. In this respect the weight of present evidence seems to favor the suprapubic operation. If operation with the knife is refused, or there be contraindications to such intervention, Bottini's operation is in order. Cystoscopy is absolutely necessary before resorting to this procedure, and should also precede perineal prostatectomy that the presence or absence of a median lobe and calculi be determined. In addition to self-catheterization, another strict indication for operation is persistent severe pains in the perineum, neck of bladder and glans penis, resisting ordinary treatment.

Responsibilities of Surgery.—M. H. RICHARDSON (*Journal A. M. A.*, October 7), in his chairman's address before the Section on Surgery and Anatomy at the Portland Session of the American Medical Association, dwells especially on the importance of the qualifications of the surgeon, both by education and practical training, diagnostic ability, operative judgment, technical skill and in after-management of the case. He thinks that too many physicians who lack both training and surgical judgment try to be surgeons, and that even in small places surgical practice should be confined to one or two competent men who, in turn, should give up their medical cases to their non-surgical brethren. He gives illustrations in support of his views, and thinks that suits for damages, unjust as most of them are, may, in the end, work out the proper solution of the problem. It is these that bring out the responsibilities of surgery more than anything else. The responsibilities for advising operation, for performing it and for after-care are greater than skilled surgeons often realize, an example, the interval operation for appendicitis, which is commonly called a perfectly safe operation. He asks what should be the education of the surgeon, and besides the mental qualities of hopefulness and endurance he mentions manual skill, which alone, however, is of little value without the finer mental qualities that permit of accurate decisions from intelligent observation. The surgeon should be a mechanic and should have a thorough knowledge of practical anatomy and of pathology, but the chief preparation must be in the direct contact with patients, and the best preparation that a man can have for becoming a practical surgeon, he thinks, is being an assistant in a

hospital. Four, five or six years of this, he thinks, is little enough.

Fracture of the Spine.—In a summary of the 244 cases of fracture of the spine which were treated at the Boston City Hospital from 1864 to 1905 (*Annals of Surg.*, October, 1905) HERBERT L. BURRELL presents the following analysis: *Frequency of Symptoms.*—Crepitus, 37.8 per cent.; deformity, 68.1 per cent.; unconsciousness, 17.6 per cent.; paralysis, complete, 71.7 per cent.; paralysis, partial, 11.3 per cent.; priapism, 27.04 per cent.; delirium, 17.6 per cent.; cystitis, 28.0 per cent.; bed sores, 26.6 per cent. *Regions.*—Cervical, 33.9 per cent. Deaths, 85.7 per cent.; recoveries, 14.3 per cent. Upper dorsal, 16.7 per cent. Deaths, 76.7 per cent.; recoveries, 23.3 per cent. Lower dorsal, 32.9 per cent. Deaths, 56.1 per cent.; recoveries, 43.9 per cent. Lumbar, 16.3 per cent. Deaths, 50.0 per cent.; recoveries, 50.0 per cent. *Mortality.*—Deaths, 64.5 per cent.; recoveries, 35.5 per cent. *Time.*—Total deaths, 64.5 per cent. Within five days, 65.7 per cent.; within ten days, 8.6 per cent.; within one month, 12.1 per cent.; after one month, 13.3 per cent. *Results.*—Total recoveries, 35.5 per cent. Useful, 62.2 per cent.; useless, 37.8 per cent. Three types of cases are recognized: (1) Cases in which the cord is crushed; (2) cases in which doubt exists as to whether the cord is irretrievably damaged; (3) cases in which it is fair to assume that the cord is not irretrievably damaged. The first type forms by far the largest class of spinal injuries. In some cases it is obvious from the character of the injury that the cord is severed or crushed, but in any case transverse destruction of the cord may be deduced from the persistence of the following symptoms: the total loss of all reflexes, complete insensibility to touch and pain, and motor paralysis below the level of the lesion. The treatment may be considered under the headings: (1) Expectant; (2) reduction and fixation; (3) operation, which may be primary or secondary. The expectant plan is applicable to fractures of the spinous processes or even of other bony structures where there are no cord symptoms. The patient should be fixed in bed, preferably on a Bradford frame. Reduction and fixation should be reserved for cases which present no cord symptoms, and for cases not hopeless which refuse an open operation. In such cases the patient should be turned as a whole, rectification should be attempted very slowly, and during every step of the operation the condition of the cord, as shown by sensation, motion and reflexes, should be known. Should the slightest sign or symptom of cord injury or pressure develop, immediate open operation should be done. The deformity may be corrected and the jacket applied with the body in suspension. There should be enough hyperextension to open the narrowed canal to its normal limits. Open operation extends the most reliable hope. The method used is Munro's laminectomy. The immediate operation is advocated unless distinctly contraindicated by shock, for the reasons that otherwise it is impossible to ascertain the condition of the cord, and again if pressure exists and is allowed to persist for many hours, irreparable damage to the cord may result. In many cases by open operation only is it possible to determine whether the cord is crushed or pressed upon by bone, blood or exudate.

Office Treatment of Diseases of the Rectum.—Speaking from personal experience, CHARLES B. KELSEY describes (*Med. Rec.*, October 14, 1905) some new methods of dealing with rectal diseases in the office. These procedures depend largely upon the modern effective employment of local anesthesia. For this end

both cocain and eucaïne are advised, whereas simple water anesthesia is described as a scientific curiosity long known. Relatively, few rectal cases require more than local anesthesia, which may be induced either by hypodermic injection or by local absorption. There are two operative methods for curing fissure of the anus, dilatation of the sphincter and incision of the base of the ulcer. Both procedures cure the ulcer by inhibiting muscular action, but stretching requires general anesthesia carried to its limit, whereas incising can be done with ten minims of eucaïne placed hypodermically under the fissure. Either method will be equally successful, but the latter avoids the popular idea of a so-called surgical operation as well as that dreaded element, ether. Pruritus ani is best relieved by actual cautery, where strong solutions of salicylic acid have been of no avail. Here the secret of success lies in destroying the old hypertrophy. Cautery may be applied at different points at successive intervals under local anesthesia or, once for all, under general anesthesia. The former method is the most efficient, for the reason that after what the patient considers a radical operation an immediate cure is expected, whereas the destruction of the skin is only one step toward cure and only a part of a general course of treatment, which generally includes many other things. It is possible in some of the simplest cases of fistula to bring about a cure under local anesthesia and incision, but as a rule these cases require general anesthesia and careful dissection. Hemorrhoids are dealt with by means of the galvano-cautery after anesthization with eucaïne. Ten or fifteen minims of a weak eucaïne solution are first deposited in the most prominent part of the tumor, and after a delay of a few minutes, to allow this to take effect, a platinum needle, heated to the point of redness, is plunged fairly into the pile. One or, at most, two applications are enough at one time, and these should not be made oftener than twice a week at first. After four or five of these applications, if pain and soreness results, it is well to stop treatment for a week. The time consumed by the method in an ordinary case is usually about three months, but the patient is not confined to the house and is able to attend to business. Complications, as abscess or hemorrhage, have not been met with, and results are permanent. Either the ligature or the clamp operation, preferably the former, may, in selected cases in which no stretching the sphincter is necessary, be performed under local instead of general anesthesia, and the results as to pain and confinement will be exactly the same.

OBSTETRICS AND GYNECOLOGY.

The Infantile Uterus and Its Treatment.—The uterus of the infantile type, with its undeveloped musculature, long, narrow cervix, antelexion and stenosis of the internal os, is a condition of comparative frequency. The symptoms associated with this condition have been attributed to various causes, such as (1) hyperesthetic tissue lining the uterus, due to degeneration and atrophy; (2) a sensitive area at the internal os, which, in the presence of escaping fluid or a foreign body, causes pain and spasm of the circular fibers at this point; (3) closure of the canal by a swelling of the mucous membrane during menstruation; (4) as a result of the undeveloped lymphoid substance, clotting may take place, thereby increasing the mechanical difficulty of menstruation; (5) mechanical obstruction to the outflow of blood, due to a stenosis of the internal os or cervical canal. C. W. BARRETT (*Am. Jour. Obstet.*, September, 1905) calls attention to the importance of prophylaxis in regard to this con-

dition. Proper attention should be given to the health of girls, especially at the approach of puberty. Nerve tension should be relieved, right living, with baths, exercise and outdoor life should be insisted upon. The writer presents a method of operation for the relief of the condition which has proved satisfactory in many cases. After dilatation, followed by curettage if necessary, the abdomen is opened and the uterus brought well forward into the wound. A longitudinal incision is made over the internal os, which is sutured in a manner to change it into a transverse incision, thereby broadening the cervix the length of the slit and shortening the posterior walls to the same extent. If a membranous constriction exists, the incision should be carried through into the cervical canal.

Congenital Hematoma of the Sternomastoid in the Newborn.—The swelling of the sternomastoid in newborn infants is usually traumatic in origin. L. PINCUS (*Centralb. f. Gynecol.*, No. 20) says that a chronic myositis may follow a typical hematoma in some cases. The swelling is seen both in vertex and breech presentations, and may occur after spontaneous delivery as well as after surgical interference. The lesion is usually produced by the severe stretching of the muscle due to the separation of the two extremities during rotation and descent of the child. The writer reports the case of a woman who received a severe blow on the abdomen four weeks before labor. The child had a swelling of the sternomastoid in which no pigment was found to indicate the occurrence of a hematoma. The condition is explained by assuming that the child was injured at the time the blow was received by the mother. Syphilis is an important factor in predisposing to the condition.

Surgical Sterilization of Women.—The performance of an operation which will render a woman sterile for life is never justifiable except to avoid a pregnancy which would be dangerous to health or life. R. CHROBAK (*Centralb. f. Gynecol.*, No. 22) states that a condition that justifies abortion may not justify castration. A contracted pelvis should not be considered an absolute indication for sterilization, since Cæsarean section, with modern technic, has become a comparatively safe operation. Chronic nephritis may be considered an indication for sterilization, psychic and nervous conditions are a doubtful indication, insanity may be curable and if severe asylum treatment would render sterilization needless. In tuberculosis of the lungs abortion should be performed if there is hope for a cure, in hopeless cases sterilization is justifiable to avoid the strain on the mother's system of bearing and nursing the child. The most satisfactory operation to accomplish sterilization is to remove the entire tube, followed by closure of the horn of the uterus.

A Method of Guarding the Perineum.—W. J. CAIE describes a modification (*Brit. Med. Jour.*, September 16, 1905) of the method which protects the perineum during the second stage of labor by the direct pressure thereon of the concavity between the thumb and forefinger of the right hand. When the fetal head is moderately distending the perineum, the latter and adjacent parts are thoroughly dried with a hot sterile towel. When the tension on the perineum is approaching the maximum, the accoucheur presses with the left hand upon the vertex to prevent sudden expulsion. The right hand then grasps the perineum in the manner described, but with this difference, that between it and the perineum is interposed a hot sterilized towel in such a way that the edge of the concavity between the thumb and index finger, the edge of the towel and the lip of the perineum are just in line with

each other, a double fold of the towel to fit into the apex of the concavity having previously been made to supply the deficiency at that point. Firm pressure is then exerted at every pain, through the bitemporal diameter. No attempt is made to push the head forward until the occiput ceases to engage. Thus three purposes are served: premature extension of the head is prevented without retarding its progress; a much firmer grip and consequently much greater support is maintained, and uniform pressure is obtained on all parts of the perineum.

Treatment of Cancer of the Uterus.—WERTHEIM describes an operation for removal of cancer of the uterus (*Brit. Med. Jour.*, September 23, 1905) by the abdominal route. After a preliminary treatment per vaginam by curetting and burning with Pacquelin's cautery, and after minute disinfection, the patient is placed in the Trendelenburg position, and the abdomen opened by a median longitudinal incision. By dividing the posterior layer of the broad ligament the ureters are exposed. Avoid isolating them all around and spare as much as possible their surrounding vascular network. After dividing the peritoneum, the bladder must be separated from the uterus. Then ligature and divide the infundibulo-pelvic, broad and round ligaments. Next the uterine vessels with the surrounding cellular tissue are ligatured and divided. This done, the ureters become easily accessible and are to be separated from the tumor. The bladder itself in its deepest part also should be separated from the tumor and the vagina. Next follows the division of the posterior layer of the peritoneum and the separation of the rectum from the vagina. Isolation now being complete, removal of the organ follows. For this purpose the two layers of the parametrium are taken off as close as possible to the pelvic wall, and the vagina cut across, having just previously been wiped out with dry sterile gauze and clamped off from the tumor above. Every lymphatic gland at all enlarged in the region of the great iliac vessels up to the division of the aorta and downward as far as the obturator foramen must be extirpated. The cavity created by the removal of the tumor is filled in loosely with strips of iodoform gauze, extending down to the vulva, and an exact closing of the peritoneal cavity over this gauze effected by sewing up the anterior and posterior flaps of peritoneum. The gauze is removed in successive strips in from five to ten days. This operation has not only reduced the mortality materially but has raised the proportion of cases suitable for operation from 15 to 50 per cent. Furthermore, from the more accurate information obtained as to the condition of the parametria and lymphatic glands, it has been learned that in only 40 per cent. of cases can vaginal extirpation be considered a radical operation.

Pyonephrosis, Pyelitis and Compression of the Ureter During Pregnancy.—A. SIPPLE (*Centralb. f. Gyn.*, No. 37, 1905) relates the history of a primigravida, thirty-three years of age, who suddenly developed abdominal pain and fever in the sixth month of her gestation. There were no bladder symptoms and no urinary changes shown by the ordinary clinical examinations. A large, fluctuating, extremely tender tumor of the left upper quadrant of the abdomen proved at the operation performed through a lumbar incision to be a large abscess of the left kidney, which was incised and drained. After placing the patient upon her right side in order to avoid compression of the ureter by the pregnant uterus, pus was found in the urine. The wound promptly healed, but pus continued to show itself in the urine. At the thirty-fifth week, after an induced

labor had been planned in order to hasten the cure of the pyelitis, spontaneous delivery of a living child occurred. Puerperium was normal with the exception of the pyuria, which persisted for several weeks. The writer ascribes the origin of this condition to an ascending infection due to compression of the ureter by the pregnant uterus, which thereby prevented the normal flow of urine and interfered with the peristalsis of the ureter, thus favoring the ascent of bacteria through the bladder ostium. The author reviews in this connection his own previous work and that of Halberstma on the association of eclampsia with compression of the ureters, he still believing that a disturbance in the excretion of the kidneys to be a prime factor in the etiology of this disease. After numerous observations the writer believes that fever from ureter compression can arise during pregnancy, not from absorption from the pelvis of the kidney, but from the site of compression in an analogous way to urethral fever after catheterization. In regard to treatment, attention is especially called to the plan of placing the patient on the sound side in order to relieve the pressure of the ureter. Acute intracapsular pressure might be relieved by nephrotomy or by the Edebohls' operation.

Fibroid Tumors of the Uterus.—In a very interesting paper on uterine fibroids F. H. MARTIN (*Chic. Med. Rec.*, September 15, 1905), after detailing the statistics on the subject and outlining the method of treatment best suited for each class of cases, concludes by stating: (1) The routine treatment for fibroids of the uterus, presenting symptoms, in women under forty-five years, should be supravaginal hysterectomy, except as hereinafter stated. The exception to this rule should be (a) in subperitoneal tumors either pedunculated or not, in which only one or more distinct developments exist which do not materially increase the size of the uterus proper and the area of its endometrium, when myomectomies may be resorted to; (b) in fibroids which present excessive hemorrhagic tendencies, in which the hemoglobin is reduced below 25 per cent., or in which serious vascular, cardiac or kidney complications exist which greatly increase the risk of the operation, when a preliminary operation of vaginal ligation of the uterine arteries should be resorted to; (c) in cases where a radical operation will not be accepted, a curettement and vaginal ligation of the uterine arteries may be resorted to, or, if no operation at all will be accepted, general tonics, ergotine in tonic doses, and galvanism scientifically applied may be depended upon to relieve the patient materially, and occasionally tide them over the menopause to a complete symptomatic cure. (2) The treatment for large, complicated tumors without regard to age, or large, apparently uncomplicated, tumors in which symptoms of hemorrhage or pressure exist, should be supravaginal hysterectomy. (3) Tumors of medium size, apparently uncomplicated, in women over forty-five years of age, may be managed by one of the less radical forms of treatment, viz., (a) when the tumors are of the symmetrical development type, enlarging uniformly the uterus, and the principal symptom is an exaggerated menstrual flow, the cases may almost invariably be relieved by galvanism and tided over the menopause; or (b) if the growth is of the irregular type which has more or less distorted the uterine cavity, the case should be submitted to dilatation, finger exploration, curettement, and, if considerable flowing is a symptom, vaginal ligation of the uterine arteries, with the idea of obtaining a symptomatic cure over

the menopause. (4) The extremely small class of tumors coming under the head of "inoperable" cases must be managed on general principles—rest in bed, general tonics, treatment of the cardiovascular and kidney complications when they exist, curetting and irrigating for septic endometritis, electricity for pain and hemorrhage, ligation of the uterine blood supply, if practicable, for intractable hemorrhage and vaginal incision of impacted cysts or pus accumulations.

PRESCRIPTION HINTS.

Gargle in Follicular Tonsillitis.—GEORGE LAURENS, in *Gazette des Hopitaux*, September, 1905, recommends the following gargle in cases of granular tonsillitis:

℞ Borate of sodium	grams 6
Glycerin	grams 10
Peppermint water	grams 40
Distilled Water	grams 100

Ambulant Treatment of Internal Piles.—C. F. MARTIN, of Philadelphia, recommends the injection method of treating internal hemorrhoids. His technic consists in the injection of 7 to 10 minims of a 50 per cent. solution of phenol into each pile tumor at intervals of from two to seven days, depending upon the effect produced. As a preliminary to beginning the injection the author recommends division of the sphincters under nitrous oxide anesthesia, much of his success with the method being attributed to this procedure. He concludes that there are not more than 15 per cent. of recurrences, and that accidents and complications are by no means so frequent as after the ligature and clamp and cautery operations. In addition, the method is practically painless, and the patient is not detained from business.

Infantile Diarrhea.—M. PERRET (*Rev. de Hyg. et de Méd. Infant.*, Vol. 4, No. 4) recommends the following treatment:

℞ Benzo-naphtol	0.50
Bismuthi salicylat.	1.00

D. in Pulv. No. iij. Sig. one t.i.d.

As an astringent to be given when the child is given only water as diet, is recommended the following:

℞ Acidi lactic	3.00
Syr. mali cydonici (quince)	25.00
Aquæ destil.	100.00

M. et Sig. One teaspoonful every half hour to a child one year old. After the first year the dose is a tablespoonful. Another useful prescription is:

℞ Bismuthi phosphat. solubil.	10.00
Syr. simplic.	10.00
Aquæ destil.	90.00

M. S. One teaspoonful every hour.

Acne Vulgaris.—In superficial acne, lotions of the face, twice a day, are very beneficial. Bicarbonate of soda (3 per cent.), spirit lotions to which are added salicylic acid (2 per cent.), resorcin (2 per cent.), or even a corrosive sublimate solution:

℞ Eau de Cologne	12 ozs.
Sublimate	5 grs.

After these lotions cold cream or some other similar preparation should be applied to the skin.

If the skin is tolerant, the following mixture might be used on the face once a week:

℞ Precipitated sulphur	3 drams
Proof spirit	4 ozs.
Water	6 ozs.

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No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

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LEA BROTHERS & CO.,

No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, NOVEMBER 18, 1905.

PROFESSOR BEHRING'S PROMISE,

RARELY has an announcement to a scientific body been fraught with such incalculable significance to the progress of civilization and of medical science as has Professor Behring's recent declaration before the International Congress of Tuberculosis at Paris, that he has discovered an efficient antitoxin for tuberculosis. So numerous have been similar claims, put forth in the past, that the public has taken scarcely more than a passing interest in the cabled reports of Behring's announcement. Yet, the reputation of the discoverer of the curative serum of diphtheria is such that his present statements compel an attention which few other men can hope to claim.

It is upon the basis of his success in the treatment of tuberculosis in cattle with bovaccine that Professor Behring has built his later researches on the curative principle of human tuberculosis. His former work has certainly proved a valuable introduction to the more important problem. Indeed, it was an indispensable preliminary, for most of the signal triumphs in human therapeutics have been rendered possible by means of animal experimentation. But, Behring's previous work was more than an experiment. It was primarily a contribution to veterinary medicine, and secondly, by preventing the

spread of bovine tuberculosis, it would tend to restrict the incidence of human tuberculosis, assuming that both forms of the disease are identical.

The paper read by Professor Behring before the Congress of Tuberculosis and which is published in *Archives G n rales de Therap.*, Oct. 23, 1905, furnishes data which are too scant to enable one to pass intelligent judgment upon them. In the nature of a preliminary communication, this contribution comes from too serious a mind to be dismissed as an abortive fancy of a self-advertising enthusiast. A well-earned reputation would not be foolishly jeopardized by claims having no foundation in fact. Unfortunately, the experimental details of his work and the mode of preparation of his antitoxin have not yet been revealed by the distinguished recipient of the Nobel award. He has submitted only a brief outline of the drift of his discoveries. The extreme optimism of his utterance and the frank admission of the opposition and criticism which he expects, indicate that Professor Behring has not been carried away by the exuberance of his enthusiasm.

The promised tuberculous antitoxin will be far different from any antitoxin that has been produced in the past. Unlike that of diphtheria, which circulates freely in the blood, and thus belongs to the humoral class of antitoxins, the tuberculous antitoxin is part of the body cells and is to be recognized as a true cellular antitoxin. The latter is produced as the result of the union of a part of the tubercle bacillus with the protoplasm of the cells.

It is only a part of the toxin of tuberculosis that combines with the body cells, and the effective antitoxin substance that is the result of this union is designated as TC. In fact, the toxin contained in the tubercle bacillus consists of three parts. One part is soluble in alcohol and ether and is called TL. Another portion is soluble in dilute saline solution, being a globulin, and is termed TGI. The third part consists of an insoluble amorphous residue, TX, which combines and enters into symbiotic relationship with the cells of the individual acting as host for the tubercle bacillus. As the result of this union the effective antitoxin, TC, is formed. The tubercles and granulations that are formed at the site of the tuberculous infection are the morphological expression of the chemical changes that have taken place within the cells.

The above is all that Professor Behring has vouchsafed to the world as to the nature of his new antitoxin. The question may now be asked: Has this substance proved its curative power in human tuberculosis? The answer is no. In spite of the utter absence of any proof of the therapeutic efficiency of the tuberculous antitoxin, Professor Behring is sanguine that the chemical tests, which he is about to invite his colleagues to make, will fulfil his anticipations. Until then, the medical profession may hope that the genius of Behring will vindicate itself.

"PRESIDENT ROOSEVELT'S CANAL."

THE address of Chairman T. P. Shonts, of the Isthmian Canal Commission, before the American Hardware Manufacturers' Association, at Washington, is not only a vigorous protest against the unjust criticisms of the daily press, concerning the alleged delay in the progress of the construction of the canal, but is also a direct refutation of the charges.

For some time past the papers have been filled with the complaint that the engineers engaged in this work "have not made the dirt fly." In answer to this, Chairman Shonts replies that "they had made the filth fly," and that the question of sanitation, and the providing of healthy quarters for the men, the installation of a sufficient commissariat, and the general clearing up of the ground, were all matters that had to be attended to before the digging of the canal itself was undertaken. And in this, unless it is the desire of the present Commission to vie with the French régime in the number of deaths, he is unquestionably correct.

All this work has been steadily progressing. There are now over 4,100 men employed in sanitation alone, and Mr. Shonts predicts that within a year Panama will be a city, well watered, well paved, and clean and healthy. The same, he declares, is being done for Colon and for every important labor camp across the Isthmus.

As to the supplies, these have been purchased in large quantities, which will afford to all employees an opportunity of obtaining wholesome food at a reasonable cost. That there should have been some delay in handling and distributing these stores in the early days of the Commission is very natural, as they of necessity met with the same obstruction and delay as did the mass of materials and purchases of the Commission, the approximate cost of which amounted to

about \$9,000,000. For even if the docks, wharves and warehouses, terminal yards, locomotives and cars of the Panama Railroad, had been in good repair, which they were not, they still would have been entirely inadequate to properly care for and handle the small business that the road was transacting.

But the existing facilities, poor as they were, it seems were rendered less efficient by the entire absence of any mechanical appliances on the docks for assisting, receiving and discharging the cargoes. As the negro laborer was the sole power employed, he was at once the only hoisting machine and the only traveling crane in use. Such being the case, it is easy to understand the congestion which naturally ensued, when the accumulated orders in the United States began to arrive in large quantities on both sides of the Isthmus.

To aggravate the situation, Mr. Shonts continues, while the deluge of arriving material was at its height, and when it was thought that affairs could get no worse, two cases of bubonic plague at La Boca resulted in two consecutive quarantines at that place, completely tying up that outlet for sixty days. In order to overcome these difficulties, it was consequently necessary to begin at once the construction of new wharves, equipped with modern mechanical appliances, and large terminal yards at both ends of the road. They have also been constructing extensive storehouses, so that the preliminary work has of a necessity retarded the actual digging of the canal; they have in fact been not only making it, but making the machine that makes it.

All this shows wisdom and executive ability. It also indicates humanity of the highest and broadest type. For if one thing has been demonstrated, not only in the history of this canal, but in all the large engineering and mining enterprises that have been undertaken by Northern nations—particularly Great Britain—in unhealthy or semi-barbarous lands, it is that the work must be done with a lower class of labor than we know anything about in the United States. Either with West Indian negroes, Chinese coolies, or the very dregs of the labor supplies of the world, whose only good quality, remarks the *Providence Journal*, is their brute strength, supported by great powers of endurance under very trying climatic conditions. For it is entirely impossible to get common laborers to go to Panama, with all the discomforts and

risks involved, who have sufficient intelligence and sense of responsibility to be dealt with as entirely free agents.

They should in fact be treated as children. Their discomforts must be mitigated by careful sanitation and scientific alimentation, but the relation of those in charge of them, says the same authority, ought to be very much that of a humane and judicious owner toward his pack animals. A case in point is that of a consignment of Martinique negroes, which had been obtained and brought from their home on specific conditions, which they doubtless understood as well as they were capable of comprehending anything. When about to be landed, a seemingly insane unwillingness to leave the ship attacked a large number of them, resembling the senseless stampede that sometimes spreads among a drove of cattle, and they were only landed on the wharf by the application of such physical force as was necessary.

Now this may be in violation of all the principles of labor-unionism, but the naked truth is that much of the unskilled work on the Isthmus, like that in the mines of South Africa, will be performed by a class of laborers that will have to be forced into observing the rules of health.

All this is a case for the doctor, and not a subject for political stump oratory, and when Senator Foraker, in his recent speech at Bellefontaine, called for non-partisan consent in pushing the completion of the canal, it was simply one more instance of something already builded better than he knew. For the engineer in charge states that it is his confident belief that by the first of January next the plant, as purchased, will be installed and working to its full capacity, so that it will be in truth what Chairman Shonts termed it—"President Roosevelt's Canal."

CATALYTIC ENZYMES.

THOSE mysterious agents termed enzymes, by the action of which molecular disruption may be brought about, with the minimal amount of energy loss and without themselves entering into the new chemical combinations formed, are establishing themselves more and more as the precursors of many of the most important of the physiological processes of the animal as well as the plant body.

As is well known, many animal tissues have the property of decomposing peroxides, notably hydrogen peroxide, and within comparatively re-

cent time it has been shown that this reaction is due to the activities of an enzyme catalase; being the term applied to it pending its more thorough investigation.

Some time past Liebermann advanced an idea that the oxygen liberated by catalase, as found in both animal and plant tissues, was thrown off in a molecular condition, and not in the active atomic state which is seen when hydrogen peroxide decomposes spontaneously. Liebermann's idea has been partly verified by Shaffer (*Am. Journ. Physiology*, Oct. 2, 1905), and it can readily be seen that the molecular state of the oxygen given off in the decomposition of the peroxides has an important bearing on the subject of the germicidal value of those widely used substances. There are, fortunately, other substances in the body tissues which break up the peroxides, some of which are thought to be oxidizing enzymes. Were it not so, and if Shaffer's conclusions were to be true that catalase is not an oxidizing enzyme, then the explanation of the clinical value of the peroxides as bactericides would need to be sought in some other direction.

On the other hand, however, Shaffer suggests that catalase may serve a purpose in the body by reason of its ability to destroy the peroxides, and in such a manner that the oxygen is not liberated in an active condition, and thus to protect the tissues from injurious oxidation which the peroxide would otherwise effect.

From another side the study of these catalytic agents is offering fruitful results. The vexed problem of narcosis, it has been shown by Neilson and Terry (*Am. Journ. Physiology*, Sept. 1, 1905) is capable of partial analysis in the light of the behavior of catalytic enzymes to various antipyretic and sleep-producing substances. Using kidney extract in contact with hydrogen peroxide these authors have found that the general effect of the hypnotics is to retard the rate of catalysis. The degree of their retarding action is as follows: Chloretone is the most powerful. Then follow chloralamid, chloral hydrate, bromides, croton chloral, paraldehyde, urethane, hedonal, in the order named. It is thus seen that there is a marked resemblance between their action as hypnotics and their retarding actions on the rate of catalysis of peroxide of hydrogen. On the other hand, antipyrine has a stimulating effect on catalysis. The results of this investigation bear out the hypothesis that the various

vital processes are of the nature of enzymatic actions, and that sleep is the result of an interference with certain catalytic powers in the cell.

ECHOES AND NEWS.

NEW YORK.

The Harvey Society.—The fourth lecture in the Harvey Society course will be delivered by Dr. P. A. Levene, at the Academy of Medicine building, on Saturday evening, November 18, at 8.30 P.M. Subject: "Autolysis." All interested are invited to attend.

New York Surgical Society.—At the annual meeting of the New York Surgical Society, held November 8, 1905, the following officers were elected for the ensuing year: President, Dr. George Woolsey; Vice-President, Dr. Joseph A. Blake; Secretary and Treasurer, Dr. John A. Hartwell.

Beth Israel Hospital.—The Beth Israel Hospital has received an offer of a donation of \$5,000 from a friend of the hospital, through Mr. Uriah Herrmann, a director of the institution, with the provision that an additional \$10,000 be raised in donations and membership dues, through the efforts of the directors and their friends, before December 1, 1905.

The East-Side Physicians' Association.—An interesting meeting was held on Friday evening, November 17, at 67 St. Mark's Place (Eighth Street), near Second Avenue. The program consisted of presentation of patients, instruments, specimens and a paper by Dr. Howard A. Kelly, of Johns Hopkins University, was read. Discussion by Drs. L. B. Bangs, F. Tilden Brown, Rannon Guiteras, George E. Brewer, Frank Hartley, H. J. Boldt, Winfield Ayres.

New York University.—The first meeting of the reorganized Medical Faculty was held this week. The former system of a governing faculty has been abandoned, and the present meetings are those of the single faculty, comprising all professors, including adjuncts and assistants, but not those of the clinical department. These and other instructors may attend faculty meetings on invitation. An advisory board is appointed from this faculty by the university corporation.

Arrest for False Report.—On November 8, 1905, in the court of Special Sessions, a physician of this city was found guilty of making a false report as to the cause of death in the case of Jennie Thompson, who died at 165 West Forty-seventh street, on July 6, 1905. Upon the certificate of death the cause of death was given as "sloughing fibroid tumor and paralysis of the heart"; an autopsy revealed the fact that a criminal operation had been performed. The cause of death, as stated by the Coroner's Physician, was "sepsis following uterine infection." This is the first time in the history of the Department that a physician has been imprisoned for making a false report to the Department.

The Biograph in Neurology.—Dr. Cecil MacCoy, of Brooklyn, N. Y., last week exhibited before a selected audience, made up of neurologists, some vitascopic pictures of symptoms and manifestations of nervous disease. The following subjects were beautifully photographed as moving pictures: Typical ataxic gait early and late tabes; ataxia of the upper extremities; Romberg symptom; tremor and attitude of paralysis agitans; gait in paralysis agitans with propulsion; hemiplegic gait; spastic paretic

gait; increased reflexes—ankle clonus; hysterical ataxia—intention tremor simulating multiple sclerosis; hysterical paraplegia—learning to walk; general gaits seen about a large nervous ward; chronic major chorea; and muscular dystrophy.

Civil Service Examinations for the State and County Service.—By recent action of the State Civil Service Commission, approved by the Governor, the civil service rules have been extended to cover the county service of the counties of Albany, Monroe, Onondaga and Westchester, in addition to the counties already classified. The examinations for positions in the county service are held by the State Civil Service Commission. Examinations will be held on December 9 for the following positions in the State and county service: Assistant chemist, Cancer Laboratory, Buffalo, \$720; health officer, town of Hamptonburg, Orange County; physician in State hospitals and institutions, \$900; trained nurse, \$420 to \$600 and maintenance. The last day for filing applications is December 4. Application forms and detailed information may be obtained by addressing the Chief Examiner of the Commission at Albany.

National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.—The Association cordially invites the profession to attend the sessions of its fifth annual meeting to be held in the main hall of the Academy of Medicine, 17 and 19 Forty-third Street, New York City, on November 29, 1905. The first session will begin promptly at half after 2 o'clock in the afternoon; the second, at 8 o'clock the same evening. The following is the program: Presidential Address, by Dr. Wm. P. Spratling, Sonyea, N. Y. Reports on Progress in the Public Care of Epileptics, New Jersey, by Dr. H. M. Weeks, Skillman; Kansas, by Dr. L. M. Perry, Parsons; Texas, by Dr. John O. Preston, Abilene; Indiana, by Hon. Ezra Mattingly, Washington. Conditions as to the Care and Treatment of Epileptics in Australia, by Miss Alice Henry, England. Organic Epilepsy, by Dr. D. R. Brower, Chicago; Organic Epilepsy, by Dr. Morgan B. Hodskins, Palmer, Mass.; The Management of the Individual Epileptic, by Dr. Edgar J. Spratling, Forsyth, Ga. Value of Hydrotherapy in Epilepsy, Dr. Guy Hinsdale, Hot Springs, Va. Can a Colony for Epileptics be Made Self-Sustaining and, if so, How? by Dr. Thos. C. FitzSimons, Wilkesbarre, Pa. Blood Pressure Observations in Epilepsy, by Dr. Edward A. Kennedy, Palmer, Mass. Statistics of Epileptics in Hampden County, by Dr. Everett Flood, Palmer, Mass. The Use of a Ferrated-Aperient-Bromide Water in the Treatment of Epilepsy, by Dr. G. K. Collier, Sonyea, N. Y. Report of a Patient with Epilepsy for Sixty-two Years, Fifteen Thousand Seizures, by Dr. Matthew Woods, Philadelphia. Evening session, 8.15 o'clock: A Note on Peculiar Attitudes During Sleep in Epilepsy, with illustrations, by Dr. N. B. Ross, Sonyea, N. Y. Report of a Case of Unusually Low Temperature Following Status Epileptics, by Dr. N. B. Ross, Sonyea, N. Y. Epileptic Automatism, by Dr. Edward Cowles, Boston, Mass. Traumatic Psychic Epilepsy, by Dr. Pearce Bailey, New York City. Hospital Care and Treatment of Epileptics, by Arthur O. Morton, Palmer, Mass. Biographs of Various Types of Epileptic Seizures (other pathologic conditions affecting movements will be shown), by Dr. W. P. Spratling, Sonyea, N. Y., and Dr. W. G. Chase, Boston, Mass.

Two Great Tuberculosis Hospitals for New York.—Almost simultaneously two departments of New York's municipal administration have made public

the details of important advances in the campaign which is waging against tuberculosis, says *Charities*. So entirely distinct and independent have been the efforts of the Department of Health and the Department of Public Charities that the daily newspapers, although publishing the respective plans within a few days, and in several instances accompanying the statement with editorial comment have, nevertheless, not connected the two proposed institutions or given any indication that they are in reality only two parts of one important undertaking. The health department has acquired a site in Orange County, on which there is to be conducted a sanatorium and inexpensive camp for incipient cases. Patients are to be provided with employment; eggs, vegetables and milk are to be supplied, so far as practicable, from the farms acquired by the city for the sanatorium; and cures are to be effected by fresh air, sunlight, outdoor exercise and abundant nourishment. The Department of Public Charities, on the other hand, is to build on Staten Island, on land already belonging to the city, a hospital for 800 patients in all stages of the disease. While provision will be made for the medical and sanatorium care of early cases, it is probable that in the natural division of work between the two institutions a large proportion of those that are cared for on Staten Island will be advanced and incurable cases. The function which it will perform will be none the less useful on that account, since the removal of advanced cases from tenement homes with the lessening of danger of infection which this involves will be of great social benefit, while the care given to the individual patients will be better and more humane than they can receive in their homes. Both institutions are needed. It is to be hoped that by the time they are in actual operation some effective plan may be devised for sending to each institution the particular patients who most need its particular facilities, and even for such transfers from the one institution to the other as the progress in either direction may make advisable. The notable fact which is recorded with pride and satisfaction and with hearty congratulations to Commissioners Darlington and Tully, is that New York is to have increased provision of both kinds, a hospital favorably located within the city, and a sanatorium favorably located in the mountains. The tuberculosis movement is assuredly making substantial progress.

New York Academy of Medicine.—The following meetings will be held: Section on Ophthalmology—Monday evening, November 20, at 8.15 o'clock: (1) Presentation of Cases: Four cases of squint successfully operated on by double advancement of exterior, by H. W. Wootton, M.D.; (2) Papers: (a) "Exophthalmic Conjunctivitis," by Chas. J. Kipp, M.D.; (b) "Intraocular Irrigation, its Advantages and Teachings," by J. A. Lippincott, M.D., of Pittsburgh; discussion by Drs. H. Knapp, S. B. St. John, of Hartford, P. A. Callan, T. R. Pooley, F. M. Wilson and others; (c) "On Conjugate Paralysis with Exhibit of Case," by J. H. Claiborne, M.D.

Section on Laryngology—Wednesday evening, November 22, at 8.15 o'clock: (1) Presentation of cases: Destruction and cicatrices of the pharynx and epiglottis of a non-specific nature, by L. M. Hurd, M.D.; (2) Papers: (a) "Specific Empyema of the Ethmoidal and Antral Cavities, with the Report of Four Cases," by Joseph H. Abraham, M.D.; (b) "Report of (a) Cyst of the Pharyngeal Tonsil, and (b) Growth of Bone in the Tonsil," by Wm. W. Carter, M.D.; (3) Presentation of Specimens and New In-

struments: Forceps and knife for use in the sub-mucous septal operation, by John McCoy, M.D.

Section on Obstetrics and Gynecology—Thursday evening, November 23, at 8.15 o'clock: (1) Presentation of specimens: (a) Fibro-myomatous uteri, by H. J. Boldt, M.D.; (b) specimen illustrating pan hystero-colpectomy, by Ralph Waldo, M.D.; (c) adeno-carcinoma of uterus, ovaries, omentum and liver, with gall-stones encysted in base of liver, by C. C. Sichel, M.D.; (2) Paper: "The Treatment of Abortion," by H. J. Boldt, M.D.; discussion by Drs. Cragin, Edgar, Von Ramdohr and others.

Section on Medicine—Tuesday evening, November 21, at 8.15 o'clock: (1) Presentation of cases and specimens; (2) clinical reports: (a) carcinoma of the pancreas with diabetic complications, by Lewis A. Conner, M.D.; (b) a case of relapsing fever, by Robert J. Carlisle, M.D.; (c) a case of typhoid fever, complicated by mesenteric thrombosis with symptoms simulating perforation, by Wm. L. Baner, M.D.; (3) Papers: (a) "Obstruction of the Pylorus," by Robert H. Halsey, M.D.; discussion opened by Dr. Edward Quintard; (b) "A Clinical Study of the Grocco Triangle," by Austin W. Hollis, M.D.; discussion by Drs. Lewis A. Conner, H. S. Patterson, J. E. Traub and others.

Section on Surgery—Friday evening, December 1, at 8 o'clock: Papers: (a) "A New Method of Excision of the Knee, without Opening the Joint—illustrated by the lantern," by Carleton P. Flint, M.D.; (b) "Hand Protection in Roentgen Praxis," by Henry G. Piffard, M.D.

PHILADELPHIA

Information Wanted as to the Practical Lives of the Blind.—Dr. George M. Gould, 1722 Walnut street, Philadelphia, will be grateful for any trustworthy information as to the methods which have been devised by the blind in overcoming their disability or in gaining a livelihood. Accounts of such lives, anecdotes, references to literature, etc., will be appreciated.

Dies at Railroad Station.—Dr. Andrew Lindsey, of Bryn Mawr, having come to Ardmore to attend a lodge meeting, fell unconscious and died at the railroad station just as he was about to take a train for his home. He was a graduate of the Jefferson Medical College and had been practising at Bryn Mawr since 1871 until four years ago when he retired; he was seventy-six years old. For the last few days he had been complaining of vertigo.

Eminent Neurologist Visits the City.—Dr. Purves Stewart, a noted neurologist of England, spent several days in the city where he attended clinics and delivered lectures. He gave a clinic at the University of Pennsylvania Hospital to the senior students. The material was supplied from the clinics of Drs. Mills, Spiller and Frazier; it consisted chiefly of illustrations of nerve injuries and operations on nerves. Dr. John H. Musser and Dr. Alfred Stengel and other members of the faculty were present. Dr. John H. Musser entertained Dr. Stewart at luncheon at the Rittenhouse Club. From this city Dr. Stewart went to Baltimore where he will visit the Johns Hopkins Hospital.

The Section on General Medicine of the College of Physicians of Philadelphia.—The regular meeting of this society was held Nov. 13, 1905. The first paper was read by Dr. Frank Billings, of Chicago. His article was entitled "The Medical versus the Surgical Treatment of Diseases of the Stomach." In the form of discussion, Dr. George Brewer, of New York, read a paper on "The Indications of Surgical Inter-

vention in Diseases of the Stomach in the Absence of Symptoms of Perforation or Hemorrhage." Dr. John H. Musser made some remarks on "The Relation of Carcinoma to Ulcer of the Stomach, Especially as Influencing the Treatment of the Ulcer." Dr. John B. Deaver, spoke of the "Final Results of Operations Such as Gastro-enterostomy, Pyloroplasty, etc., in the Treatment of Diseases of the Stomach." Dr. J. Dutton Steele, spoke of "Certain Therapeutic Indications Based Upon the Presence of Occult Blood in the Gastric Contents and in the Feces."

Donation Day.—At the Philadelphia Home for Incurables, November 8 was set apart as donation day. The Board of Managers took a greater interest in the affair this year because a large debt on the new cancer hospital is to be met, repairs on the main building are necessary, a sun parlor and an assembly room are needed for the comfort of the patients. The last annual report showed that the home contained 151 patients, 26 in the children's ward, 90 in the main building and 35 in the cancer annex; there are 300 on the waiting-list. A day for a similar purpose was observed at the Children's Homeopathic Hospital. The number of patients treated in this institution during the year just ended exceeded by far the number treated heretofore; consequently, the friends of the institution are taking a greater interest in this character of work. In order to raise the money to complete the addition to be made the Woman's Medical College of Pennsylvania, a bazar was held in the hospital of that institution Friday and Saturday evenings. Attending the college are several Hindoo girls, one Japanese and one Philippine girl; these girls were dressed in their native costumes and served refreshments from their respective booths; there were also Turkish and Italian booths.

Drug Trust Prosecuted.—In 1900 the Proprietors' Association, Inc., which includes all the manufacturers of patent medicine, the Wholesalers' Association and the National Association of Retail Druggists consolidated. By means of this combination the prices of drugs were fixed to be sold at a certain rate throughout the entire United States, and anyone found cutting the fixed price was boycotted. Not long ago G. A. Loder, retail druggist at Sixteenth and Chestnut streets, sold a patent medicine, fixed at 89 cents by the trust, for 69 cents. So soon as this combination heard of this matter, the retail druggist was at once boycotted. As a result he found it very difficult to get drugs, very often he found it impossible to fill prescriptions sent to him. The state of affairs became so embarrassing that he brought suit against this criminal combination. The case is now before the jury. In opening the case before this body, Mr. Henry J. Scott said that as a result of the consolidation the trust increased the price on drugs to the extent of \$40,000,000, every cent of which had to be paid by the consumer. He proposes to show that the procedure is a direct violation of the anti-trust law drawn up by Sherman and passed by Congress in 1900. More than 2,500 pages of depositions have been taken in various cities wherein the alleged trust has its headquarters.

Pathological Society of Philadelphia.—The regular meeting of this society was held Nov. 9, 1905. According to the method adopted recently the card specimens were shown before the papers were read, so that the members may have the opportunity of examining them at any time during the evening. Dr. Alburger showed a parasitic fibroid of the omentum. Dr. B. Franklin Royer (by invitation) showed a series

of brains and spinal cords illustrating the morbid anatomy of cerebrospinal meningitis. Dr. D. J. McCarthy exhibited card specimens illustrating tuberculous meningitis. Dr. Levison showed a brain exhibiting hemorrhagic pachymeningitis. Dr. B. Franklin Stahl and Dr. John Funke showed a brain and cord illustrating a pneumococcal meningitis. Dr. John Funke exhibited a fresh specimen showing a hypernephroma involving both adrenals, both pleurae and the left lung. Dr. William Pickett read a paper on "Syringomyelia, with a Report of Two Cases." It was discussed by Dr. Spiller. Dr. William G. Spiller then read a paper on "Meningomyelitis with Intense Swelling of the Spinal Cord and of the Roots of the Cauda Equina." This paper was discussed by Dr. Coplin. The next paper was read by Dr. G. Canby Robinson, "Bacteriological Findings in the Fifteen Cases of Epidemic Cerebrospinal Meningitis, with Especial Reference to the Isolation of the Meningococcus from the Conjunctiva and from the Circulating Blood." The paper was discussed by Drs. Royer, Holmes, Rosenberger and Coplin. Dr. Allen J. Smith spoke of "The Process Involved in, and the Significance of, the Invasive Stage of Febrile Affections."

CHICAGO.

Chicago Union Hospital.—This corporation has bought the northwest corner of Wellington Avenue and Dayton Street, 90 by 264 feet, for \$23,000.

Bequests.—According to the will of Mr. James C. King, who died recently in this city, \$90,000 has been bequeathed to eight Chicago charitable institutions, and to a hospital in Pasadena, Cal. The Chicago Home for Incurables receives \$10,000; the Chicago Orphan Asylum, \$10,000; Home for Crippled Children, \$10,000; Presbyterian Hospital, \$10,000; Hahnemann Hospital, \$10,000; Old Peoples' Home, \$10,000, and Foundlings' Home, \$10,000. In addition to the foregoing a second \$10,000 was left to the Presbyterian Hospital as an endowment for a free room for such patients as may require a private room and are unable to pay for it.

Appointments at Insane Hospitals.—Dr. Edward A. Foley has sent in his resignation as first assistant physician of the Northern Illinois Hospital for the Insane, Elgin. Dr. Edward F. Leonard, Chicago, has received the appointment of physician to the Illinois Central Hospital for the Insane at Jacksonville, vice Dr. Louis H. Clampit, Jacksonville. Dr. Harry C. Hardt has succeeded Dr. Elmer L. Crouch, Mount Vernon, as assistant physician of this institution. At the Hospital for the Incurable Insane, Bartonville, Dr. Arthur K. Stangland, Chicago, has been appointed senior assistant physician, vice Dr. A. T. Burnham. Dr. I. O. Paul, Winnebago, who was appointed interne at the Northern Illinois Hospital for the Insane, Elgin, has declined the appointment.

Diphtheria at Taylorville, Illinois.—The Secretary of the Taylorville Board of Health (Dr. Guy L. Armstrong) states that there has existed in Taylorville for several weeks a mild epidemic of diphtheria, probably one hundred or more cases, about twenty-five of which are now under quarantine. Being mild and thus far with no fatalities, the epidemic is being given too little consideration generally, many doubting the diagnosis, although it has been demonstrated in all but one instance in which cultures have been made. Until the last few days it has been confined chiefly to one community, and the children attending one school, which has been closed for some time. On account of the development recently of several cases in different parts of the city in children attending the various schools, all

the ward schools and the public library have been ordered closed. The Humphrey schoolhouse, near Barrington, has been closed on account of diphtheria. Richwoods Township is suffering from an epidemic of diphtheria which may necessitate the closing of the public school.

GENERAL.

Johns Hopkins University.—Enrolment figures at the Johns Hopkins Medical School show a total attendance of 293. The first year class consists of 58, a smaller number than any of the higher classes. In the first year class are seven women, a larger number than any previous class has contained. A new laboratory to be devoted to experimental surgery upon animals will soon be ready for use. Another new feature is an official medical adviser, who will render professional service free of charge to all students of the university.

Mosquitoes Carried Fever.—That yellow fever was brought to Havana by mosquitoes from New Orleans is the theory generally accepted in Havana. It has been learned that some mosquitoes made the journey from New Orleans in several cases of electrical apparatus recently brought here. These cases were assigned to a firm having offices in the Payeret Theater Building. They were taken there and opened, and it was noticed there some mosquitoes were liberated. The first person to be attacked by yellow fever was a member of an opera company playing at the Payeret Theater. Subsequently the disease attacked an electrician employed in the same building. All of the other cases have originated in this vicinity, and it is believed that the mosquitoes from the cases brought from New Orleans carried the infection. The case of H. V. Chilvers, the New Orleans electrician, who was taken to the Las Animas Fever Hospital Saturday, was to-day diagnosed as yellow fever. The Spaniard who was stricken Saturday and isolated in the Clerks' Hospital died there to-night. There are now two cases of yellow fever at the Las Animas Hospital and one suspect, a Spanish woman, was placed under observation.

International Medical Congress.—The committee in charge of the International Medical Congress, which will be held in Lisbon from April 19 to 26, 1906, has written asking for the contribution of papers on the following medicolegal subjects, and saying that as yet no titles of communication touching on any of these subjects have been received from this country: The signs of virginity and of defloration in medicolegal relations; hand-marks and finger-prints, their medicolegal importance; the medicolegal importance of the carunculæ myrtiformes; the mechanism of death by hanging; the value of bacteriologic examination of vulvovaginal discharges in the determination of venereal contagion; the signs of death by drowning; echymoses in legal medicine; spontaneous and criminal abortions from a medicolegal point of view; medicolegal investigation of blood stains; the relations between the seat of cerebral contusions and the point of application of the agent which produced them; epilepsy in legal medicine; the induction of abortion, when is it permissible; the value of legal medicine in the study of criminal law; the best legislation for the protection of the "medical secret" (the obligation imposed upon physicians to treat as inviolable all information concerning patients obtained while in the discharge of their professional duties); the effects of the civil and penal law toward the newborn living infant; distinction between the natural openings in the hymen and tears of this membrane; criminal vulvar copulation; organization of medicolegal services. If any of the readers of this communication intend to

take part in the discussions of this section of the congress, or to prepare papers for it on any of the subjects mentioned, or on any other subject in medicine or surgery, he should inform the secretary of the American Committee, Ramon Guiteras, secretary, American National Committee, 75 West Fifty-fifth Street, New York.

Superstitions in Medicine.—It was firmly believed by the Greeks so early as the sixth century B.C. that he who slept in a temple would be surely cured of any physical disorder. Dr. Hugo Magnus, in his new book, "Superstition in Medicine," says that a tablet found in the temple of Æsculapius at Epidauros tells us that a blind man by the name of Hermon, a native of Thases, had recovered his sight by sleeping in the Epidaurean Temple of Æsculapius. However, it appears that this man Hermon had been a miserable wretch, for he disappeared without having expressed his thanks in hard cash. Naturally such ingratitude provoked the god, and summarily he blinded the thankless individual again. It required a second temple sleep before the god condescended to become helpful once more. But our tablet does not mention anything about the amount of the remuneration paid by our friend Hermon who had been twice cured of blindness, neither is this at all necessary. The miraculous tablet, even without stating the price, doubtless made sufficient impression upon the minds even of the most parsimonious of future patients. He further mentions many strange cures. Two of the most popular remedies of early times were the powders obtained from scraping the tombstones of saints (the powder being placed in wine or water) and the charred wicks of wax candles that had been burned in a church. Let us listen to what Gregory of Tours has reported concerning the medicinal virtues of tombstone potions. He says, "Oh, indescribable mixture, incomparable elixir, antidote beyond all praise." Celestial purgative (if I may be permitted to use the expression) which throws into the shade every medicinal prescription, which surpasses in fragrance every earthly aroma, and is more powerful than all essences; which purges the body like the juice of scammony, clears the lung like hyssop and the head like sneezewort; which not only cures the ailing limbs, but also, and this is much more valuable, washes off the stains from the conscience! This wick was pulverized, and in this manner a very powerful curative powder was obtained, which, when taken, acted in a manner similar to that of the watery or vinous tombstone infusion. That the therapeutic value of prayer is one of the oldest beliefs, is also shown by Dr. Hugo Magnus. The early fathers of the Church sought to increase this therapeutic power by means of various accessories and aids, which even now survive in this twentieth century. "Thus the Gospel was placed upon the affected part of the body, or clothing of a particularly pious man was spread over the patient. It appears that the sudarium and the coat of the Apostle Paul were held to possess such healing power, and were, therefore, frequently employed as instruments of healing."

Hospital Interne (Male) Examination for Panama Canal, November 29 and 30, 1905.—The United States Civil Service Commission announces an examination on November 29 and 30, 1905, at the places mentioned in the accompanying list, to secure eligibles from which to make certification to fill vacancies in the position of hospital interne under the Isthmian Canal Commission on the Isthmus of Panama. Two days will be required for this examination. Men only will be admitted to this examination. Each applicant for the Isthmian Canal Service will be required to submit

to the examiner, on the day he is examined, a photograph of himself, taken within three years, which will be filed with his examination papers, as a means of identification in case he receives appointment. An unmounted photograph is preferred. The date, place, and kind of examination, the examination number, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph. Full information concerning transportation to the Isthmus, conditions of employment, etc., is contained in Form 1417 herewith. Age limit, twenty to thirty years on the date of the examination; salary, \$100 per month, with quarters, but without board and washing. Only graduates of reputable medical schools having a three years' course will be admitted to this examination. The examination will consist of the subjects mentioned below, with the relative weights indicated: (1) Letter-writing (the subject-matter on a topic relative to the practice of medicine), 5; (2) anatomy and physiology (general questions on anatomy and physiology, and histologic or minute anatomy), 15; (3) chemistry, materia medica, and therapeutics (elementary questions in inorganic and organic chemistry; the physiological action and therapeutic uses and doses of drugs), 10; (4) surgery and surgical pathology (general surgery, surgical diagnosis; the pathology of surgical diseases), 20; (5) general pathology and practice (the symptomology, etiology, diagnosis, pathology, and treatment of disease), 25; (6) bacteriology and hygiene (bacteriologic methods, especially those relating to diagnosis; the application of hygienic methods and prophylaxis and treatment), 10; (7) obstetrics and gynecology (the general practice of obstetrics; diseases of women, their pathology, diagnosis, symptoms, and treatment, medical and surgical), 15. Total, 100. This examination is open to all male citizens of the United States and also to aliens who comply with the requirements, provided that aliens appointed for service on the Isthmus of Panama shall not be eligible for appointment or transfer to any other branch of the public service. The county officer's certificate in the application form need not be executed. No person will be appointed for service on the Isthmus who is not physically sound and in good health. Persons appointed to positions under the Isthmian Canal Commission will be expected to proceed promptly to the Isthmus. Persons examined for positions under that commission will not be eligible, as the result of such examination, to positions in the United States or Philippine services. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the accompanying list, for application Form 1312. The medical certificate in Form 1312 must be filled in by a reputable practising physician. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application. As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will, therefore, arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

Odell and Insurance Graft.—Now that the Hughes Investigating Committee is unwinding the slimy evil of our one-time executive the contentions of the medical press anent the lunacy commission affairs are more than justified.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

THE PEREGRINATIONS OF OSLER—DISEASE AS A GOOD GIFT TO MAN—LONDON LUNATIC ASYLUMS—A NEW POST-GRADUATE SCHOOL—COMPULSORY EDUCATION AND INFANT MORTALITY—MOVABLE KIDNEY AND NERVOUS DISEASE.

LONDON, November 4, 1905.

DR. OSLER began his career at Oxford by having all the students who are members of the medical faculty individually presented to their new professor. There are only some sixty of them, for the ancient University on the Isle jealously guards her portals with academic requirements that comparatively few candidates for admission are able to satisfy. Moreover, the degree of Bachelor of Medicine cannot be got in less than six years; most students, indeed, take seven. Two or three years further are required for the M.D. This makes the Oxford degree a very costly luxury. The Radcliffe Infirmary (so called after its founder, John Radcliffe, who told the dropsical William the Second that he would not have His Majesty's two legs for his three kingdoms) has only 150 beds, and clinical teaching has hitherto been, like Horace's worship of the gods, scanty and infrequent. The late Regius Professor, although he was nominally senior physician to the Infirmary, cared for nothing but physiology; his clinical teaching, had he attempted it, would have been that of forty years ago. Osler intends, I hear, to breathe life into the teaching of medicine; if he does so, it is likely that he will remove from Oxford the reproach of being "a lost medical school." In the meantime he is in great demand as a speaker at all kinds of medical gatherings. For the last few weeks he has been walking up and down on the earth, delivering addresses to students, medical and dental, and, of course, perorating on Sir Thomas Browne. The tercentenary of the birth of that worthy was celebrated at Norwich on October 19. For many years admirers of the *Religio Medici* had been collecting funds for a suitable memorial. Money came in but slowly, and, strange as it may appear, the movement was opposed by an Irish expert in lunacy on the ground that Browne's views on witchcraft were not up to the standard of present-day enlightenment. Nevertheless, a statue has been erected, and its unveiling was made the occasion for the usual distressing exhibition of the average Briton's utter lack of oratorical faculty. In that line Osler shone among the speakers as a bright particular star. The statue is intended to represent Browne contemplating a fragment of a burial urn; to my profane eyes he looks rather as if he were scratching his head over a broken domestic ornament, in perplexity as to an explanation which may avert the wrath of an esthetic wife.

Another itinerant medical orator who has lately bulked large on public platforms is Sir Frederick Treves. That distinguished surgeon appears to be cultivating a talent for paradox which may in time make him a dangerous rival to George Bernard Shaw. Addressing the Philosophical Institute at Edinburgh he treated his solemn Caledonian audience to an unexpected display of fireworks on the somber subject of disease. He began by admitting that the popular notion of disease was that it was a calamity, an enemy to mankind. This, according to the new medical learning, is all wrong. So far from being an evil, we are told that disease is one of the good gifts to man, for its motive is benevolent and protective; indeed, if it were not for disease, the human race would soon be extinct. The lecturer

illustrated his text by reference to inflammation following a wound which he described as a process of cure to be imitated rather than hindered. Peritonitis, which had always been spoken of as the operating surgeon's deadliest enemy, was in reality his best friend. Thanks to it, the mortality from appendicitis was low, whereas without "that much-abused ally" peritonitis it would invariably slay its victim. Another instance of the beneficence of disease was a common cold; the symptoms of which so far from being "purposeless, profitless and wantonly distressful," were really manifestations of the process of cure, without which a cold might be a fatal malady. Malaria, plague and tuberculosis were also represented as examples of the merciful forethought of nature or, in the words of the orator, "expressions of an unflagging effort on the part of the body to oppose the progress of an invading bacterium." Treves was fain to confess that his vindication of the beneficent character of disease could not at present be applied to cancer and other disorders, of which nothing was known; but he hinted that when their secret was disclosed, they would be found to confirm his optimistic theory. Leaving paradox toward the end of his discourse, Treves threw out a suggestion as to the prevention of cancer which sounds plausible enough to make it worth a trial. It may not be new, but I give it for what it may be worth, as far as possible in his own words. He said that if he were compelled to add to the list of surmises as to the possible lines on which a remedy for cancer might be expected, he would point out that during the period of development in childhood there were certain glands in an active state which would appear in some way to control, limit and modify a process of production which might without such control run riot. It was noteworthy that one such gland—the thymus—wasted and vanished after the period of greatest bodily activity was over, and it was impossible not to wonder whether the introduction of the active principle of such a gland in a case of cancer would exert an influence late in life, which it seemed to be intended to exert when growth was alert in the young. Thymus extract had been largely tried in medicine, but it did not appear that any active principle had been isolated from the gland and used.

From the annual report of the Asylums Committee of the London County Council for the year ending March 31 last, which has just been issued, it appears that the increase of lunacy in London during the past year was considerably less than in the preceding year, the number being 704 as against 996. The steady growth of insanity has not, however, been broken. On January 1 last, there was a total number of 24,652 pauper lunatics against 23,948 in 1904. The need for more asylum accommodation is strongly emphasized in the report. The number of patients for whom the Council had to provide accommodation was 18,168, while the number of beds in the asylums at its disposal was only 17,060. The result was that in March last, 898 patients were boarded out in other country asylums and institutions at an increased cost to the rate-payers. Works to provide accommodation at existing asylums for 2,613 additional patients are in progress, and a scheme is under consideration for erecting a new asylum to provide beds for 2,000 more. Vast sums of money have also been expended in ordinary improvements and repairs in the existing asylums. And the pity of it is that, as far as the unhappy patients are concerned, a large part of the money spent by the London County Council on asylums is thrown away. In these huge caravanseries persons suffering from every variety of mental disease are herded together, and acute cases in which proper treat-

ment would probably bring about a cure degenerate under the influence of their environment into hopeless chronic dementia. What is urgently needed is a hospital in which incipient cases can be kept under observation and acute cases treated by men of special knowledge. At present the asylums are to a large extent staffed by men who are without such knowledge and who are not encouraged to acquire it. Over and over again these reforms have been pressed on the attention of the Council, but that body prefers to build palatial asylums which, it is—perhaps uncharitably—believed, are intended to dazzle the eyes of the rate-paying public rather than to provide more effective treatment for the insane.

As medical science advances the need of post-graduate instruction is felt more and more by general practitioners. Notwithstanding the existence of two or three post-graduate schools, the provision of such instruction in London is still inadequate. I am not surprised, therefore, to learn that the establishment of another is in contemplation. The old "Dreadnought" ship-hospital was long ago converted into the Seamen's Hospital at Greenwich, a well-equipped institution with 250 beds. This hospital is under the control of the Seamen's Society, a public-spirited and enlightened body which has already placed the British Empire under an incalculable obligation by its management of the London School of Tropical Medicine. The hospital of that school is a branch of the Seamen's Hospital. It has already trained nearly six hundred medical men and women for tropical practice and research. It is now felt that the large amount of clinical material supplied by the Seamen's Hospital might with the greatest advantage be used for educational purposes. Owing to the fact that a very large proportion of the inmates are foreign sailors, there are probably more unclaimed bodies at the "Dreadnought" than at any other hospital in London. Hence it possesses peculiar advantages for the teaching of operative surgery. It is proposed to appoint a medical and surgical staff composed of men in the front rank of the profession whose names will serve to attract practitioners anxious to furbish up their rusty knowledge. Teaching of the best kind will be provided in all branches of the art of healing. An outpatient department is to be opened, and as the hospital is situated in the midst of a very poor quarter, this will be a boon from the humanitarian as well as the educational point of view. Among the men whose names are mentioned as likely to be appointed are Sir Dyce Duckworth, Mayo Robson and Malcolm Morris. If after a time the experiment appears likely to be successful, a separate building will be provided for the nurses; this will give 40 more beds to the hospital. It is hoped that a beginning may be made at the new year.

In an address delivered before the new York Medical Society the other day, Sir William Church, ex-President of the London College of Physicians, denounced compulsory education as the source of much evil not only to the health of the children who are driven to the schools, but to the physical welfare of future generations. He said that when compulsory education became the law of the land, our educational authorities entirely overlooked the dependence of the mind on the body, and that the education of the body was of equal or even greater importance than that of the mind for the welfare of the nation. While he admitted that compulsory education had been of inestimable benefit on the whole, it was equally true that on certain portions of the population it had been a factor in producing a change in their habits which had a prejudicial effect on their domestic life, and consequently on their health. The most se-

rious problem of the present day to sanitarians was the high rate of infant mortality. At first sight there appeared to be no connection between education and infant mortality, but he had no doubt there was. Formerly the elder girls in a family had a thorough training by their mothers in the management of their home, such as it might be, and in the care of the younger children. Now they are at school until fourteen, and when they leave have at once to go to work, often in factories. They marry, knowing nothing of how to make a comfortable home or how to make the most of their means, either in the way of food or household necessities, and are completely ignorant of how to attend the baby which commonly follows. The Board of Education made, in his opinion, a serious mistake when it came to the conclusion that children of three and upward could not be reasonably refused admission to school. It was no doubt a boon to the mothers to have their infants taken care of for part of the day, but he questioned very much if it was good either for the home or for the children, and he believed that infant classes, as hitherto carried on, had a benumbing effect on the mental activity of children. He was thankful to understand that the Board now left it in the hands of the county council to decide how far children below the age should be received. If they were to raise the standard of the lowest classes they must interest and instruct them in the essentials of decent and healthy life. "Neither free breakfasts nor State employment can do this, for unquestionably a large part of their present sad condition arises from their own improvidence and ignorance."

In a book entitled "Movable Kidney," which has just appeared, Dr. C. W. Suckling, formerly Professor of Medicine in the Birmingham School of Medicine, claims to have proved that movable kidney is the real cause of much of the insanity, mental failure and other nervous disorders so prevalent at the present day. He states that he has found that condition in about 40 per cent. of women suffering from nervous ailments; in men, similarly afflicted, the proportion given is 6 or 7 per cent. He affirms that when the movable kidney has been kept in place, either by belts in mild cases, or by surgical operation in severe cases, the effect on the nervous state has been eminently satisfactory. Dr. Suckling holds that in many cases, in which an operation has been done for appendicitis, the real trouble has been movable kidney. A prolapsed right kidney, he says, may not only cause symptoms of appendicitis, but may actually produce the disease by interfering with the circulation of the appendix. The phenomena caused by movable kidney may simulate gallstone, renal colic and intestinal obstruction; in all cases of indigestion the condition should be looked for. He says: "It has been painful to me to meet with many elderly women suffering from insomnia, headache, depression, dyspepsia, neuralgia and constant ill-health, which might have been prevented years ago if the condition of the kidneys had been discovered. It is a common thing to meet with confirmed invalids of many years' standing, whose illness has been due to mobile kidney which has never been discovered, although many physicians and surgeons have been called in." He adds that many women have committed suicide, or have been sent to asylums, who might have been saved had the condition of the kidneys been discovered. In his own practice he can recall four cases of suicide. One patient while waiting for admission into a hospital drowned herself; three others whose parents would not allow them to be operated upon, or who had been frightened by friends about the operation, also drowned themselves. Another pa-

tient had to be removed to an asylum because Dr. Suckling was not supported by other physicians in his advice. He sums up his teaching on this point in the following statement: "From a large and varied experience of dropped kidney cases, and realizing the astounding effects upon the mental condition, I say that no man or woman should be sent to an asylum to-day without careful and repeated examination for 'dropped kidneys.'" Dr. Suckling thinks the frequency of movable kidney in women is due to the excessive athleticism which is one of the notes of the girl of the period. His theory is suggestive; it is based on a large experience, and he quotes in confirmation of his statements the names of several well-known surgeons who have operated at his request on cases of movable kidney. Unluckily, the book has somehow been made the subject of a newspaper "boom," and thus a prejudice against it has been excited among the many members of our dignified profession whose works escape this undesirable publicity.

PERUNITIS (PERUNA-ITIS) OR HARTMANITIS?¹

To the Editor of the MEDICAL NEWS:

DEAR SIR: Last year I was called to see a woman just past the meridian of life, whom I found suffering from multiple neuritis. The nerves of the lower extremities, the upper extremities and some of the nerves of the head were successively involved. There was no history nor evidence of exposure to cold, rheumatism, nor exhaustion to act as etiological factors. Finally, after ruling out other causes of the disease, it became evident that the patient must have been taking alcohol in some form, notwithstanding the fact that she was a refined lady and an earnest advocate of temperance, who would not knowingly indulge in any form of alcoholic beverage. I asked her what she had been drinking. She was shocked. She disclaimed being a tippler either in public or private. I asked her what medicine she had been taking. She stated that she had not been under the care of a physician. Further examination into the history of the case revealed the fact that the patient had been using "Peruna" for a long time, taking the nostrum under all sorts of pretexts. After explaining the case to the patient, she readily consented to stop the "Peruna" cocktails. As stated, first one nerve then another was attacked. Finally, after about three months' treatment with the usual remedies for multiple neuritis, the case apparently removed.²

The case is interesting from a nosological standpoint. When practicable, it is customary in medicine to seek an etiological classification of diseases. Since the only apparent cause of the disease in this case was "Peruna," would it be proper to call it peruna-itis or perunitis? Or should we honor the discoverer or concoctor of the nostrum and name it Hartmanitis?

GEORGE E. MALSARY, M.D.

Asst. to the Chair of Practice, Med. Coll. of Ohio,
Med. Dept. Univ. of Cincinnati.

Cincinnati, Ohio, November 17, 1905.

Obituary.—Dr. CHARLES H. LANGDON, who had for forty-eight years been a member of the medical staff of the Hudson River State Hospital, near Poughkeepsie, died at his cottage at the institution last week. Death was caused by exhaustion following a second operation for appendicitis, which was performed a few days before his death. The first operation was performed on October 2.

¹ A case reported to the Cincinnati Academy of Medicine, October 23, 1905.

² The case has since relapsed, as is so common in this disease, showing that the recovery was not complete.

SOCIETY PROCEEDINGS.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The attitude of the International Congress on Tuberculosis, recently held at Paris, is of the deepest interest. In the First Section, October 3, discussion was held upon the

Relations between Human and Animal Tuberculosis.—The majority were clearly in favor of regarding the bovine variety of real danger to the human race, especially to children.

Dr. S. Arloing, of Lyons, pointed out that hitherto most observers had confined their attention to the difference existing between the bacilli found in the various species of living creatures, but if instead their similarity be noted, then it would be found that all belonged to the same species and possessed no well-marked differences. Slight variations are known to occur in the morphology of the bacilli of human tuberculosis.

Dr. H. Kossel, of Giessen, contended that two distinct types of tubercle bacilli, bovine and human, could be distinguished. Tuberculous lesions could, however, be produced in man by bacilli of the bovine type, but this mode of contracting the disease was relatively rare.

Dr. M. P. Ravenel also distinguished two types, but believed there was a more striking difference in virulence than in cultural, morphological and tinctorial characters, the human type having a greater pathogenic power. From the evidence at hand the disease in cattle must be regarded as the source of a certain part of human tuberculosis.

The Protection of Children Belonging to Tuberculous Families—Was the next topic discussed.

Dr. A. B. Marfan asserted that the ages most dangerous to children were between one and six years. Prophylaxis should be considered from two standpoints; children who actually lived with tuberculous people and children who harbored the predisposition. In the former class the precautionary measures are the same as those adopted for the prevention of the disease in general. In the latter class less stringent measures suffice. All milk should be thoroughly boiled; playing in public places avoided; hands and nails repeatedly cleansed; and the occupancy of any home or room in which a consumptive has previously resided absolutely precluded. These measures should be more particularly applied to children convalescing from measles or whooping-cough and to those subject of enlarged bronchial or cervicle glands. The child should live in the open air as much as possible, overwork should be avoided, the appetite encouraged, and physical exercise energetically practised.

Dr. Heubner, of Berlin, insisted on the importance of educating nurses and midwives as to the protective measures which should be adopted in regard to children born of a tuberculous mother, and likewise laid stress upon the necessity for legislative measures which should be adopted for the prevention of tuberculosis.

Prevention of Tuberculosis in Schools.—On October 4, the discussion was continued under this topic. Dr. H. Mery pointed out that one of the chief dangers arose from the fact that pulmonary tuberculosis in children frequently remained undetected, and that therefore the general precautions against tuberculosis in all schools should be rigorously enforced.

Professor F. Ganghofner, of Prague, drew attention to the importance of distinguishing between the child and its surroundings, the latter deserving especial attention. He also emphasized the frequency of latent tuberculosis in children, and produced statistics to prove his contentions. Amongst 460 children under one year of age latent tuberculosis was found in 7.1 per cent.; amongst 536 between one and two years of age, 16 per cent.; amongst 476 between two and seven years of age, 24.5 per cent.; amongst 271 between four and six years of age, 26.9 per cent.; and amongst 123 between six and eight years of age, 26.8 per cent.

The Value of Sanatorium Treatment.—Dr. Arthur Newsholme was selected to send to the Fourth Section a statistical report intended to show the beneficial result of institutional treatment. The figures tend at times to confuse and to contradict. Yet in the main, they undoubtedly show a marked improvement in the general situation. In England since 1861 the death rate from pulmonary tuberculosis has declined 38 per cent.; in Scotland, 42 per cent.; and in Massachusetts, 56 per cent. It is to the work-house infirmaries, and not to the hospitals, that we are indebted for separating the tuberculous patient from the rest of the population, and thus preventing the spread of the disease. It is very doubtful if sanatoriums have had any appreciable effect, since the disproportion of beds to tuberculous population is too great. Dr. Newsholme does not deal with the problem of sanatoriums, but confines his observations to the larger field, the segregation of incurable cases.

(To be Continued.)

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held October 9, 1905.

The President, T. E. Satterthwaite, M.D., in the Chair.

SYMPOSIUM ON FOODS AND NUTRITION.

Introductory.—Prof. R. N. Chittenden, of Yale University, said he was glad of the opportunity of making a plea for the broader and more thorough study, along scientific lines, of the subject of nutrition. As medical writers state, with truth, that the majority of diseases are due to disturbances of nutrition, to perversions of metabolism, we certainly need as full and complete knowledge as is possible to obtain of all the varied processes of nutrition, that we may be able to correct those deviations from the normal which we characterize as disease. Observation points to the widespread use of methods and treatment which tend to temporary alleviation, rather than the radical cure of disease by bringing back the body to a normal state of nutrition. Prevention is better than cure, and we may well query whether with a proper understanding of the true laws of nutrition, of the real needs of the body for food, with a clear conception of the processes of digestion and excretion, we should not be in better condition to combat disease than we now are. There is still undiscovered territory, and the opinion may be ventured that when we hold in our grasp the key to an understanding of normal nutrition many forms of disease will be checked and held in abeyance through intelligent application of scientific knowledge. Even at the present day the physiologist and the practising physician show a noticeable lack of agreement as to what constitute a proper diet under

normal conditions, to say nothing of the requirements in cases of disease. Who can tell with any degree of precision the exact effects of proteid food upon the functions of the liver and kidneys, the effect of an accumulation of nitrogenous waste-products on the system, or to the effect of different types and admixtures of foods on the growth of the young? Prof. Chittenden expressed the opinion that two at least of the dread diseases of mankind, cancer and tuberculosis, are probably the result of a disturbance of nutrition in which at least the predisposing causes are to be found in excess of nutritive material in general in the blood, or to a disturbance in the balance of nutritive materials in the circulating medium, or possibly in the tissues themselves. In tuberculosis, he said, while all recognized the importance of fresh air, there appeared to be much uncertainty as to the character and extent of the diet best adapted for combating this disease. There was surely, he thought, a reaction going on against the altogether too prevalent fashion of overfeeding in it. In conclusion he said that his own observations had led him to believe that there is much of value to be learned in a study of the minimal quantities of food required to maintain health and strength. The real needs of the body for food are unquestionably very much below the amount ordinarily consumed, and, this being true, one may well ask, Does not this excess of food, for which the body has no true physiological need, in the long run imperil the health of the individual, diminish the ordinary powers of resistance, and so pave the way for various forms of disturbed nutrition which we speak of as disease?

A Theory of Protein Metabolism.—This was the subject of a paper by Otto Folin, Ph.D., of the McLean Hospital, Waverley, Mass. Detailed analytical studies by him of urines rich in nitrogen and of urines containing the minimum amount of nitrogen have brought out facts which show, he believes, on the one hand that the prevailing views concerning the composition of normal human urine are erroneous, and on the other that the current theories of protein metabolism are untenable. While it is commonly supposed that the urea contains about 90 per cent. of the total nitrogen in normal urine, this is really the case only when a large amount of protein is destroyed within the body, and when the urine, in consequence, is rich in total nitrogen. When the daily protein consumption is reduced and the total nitrogen elimination diminished, the percentage of that nitrogen present as urea sinks lower and lower until it finally represents less than 60, and sometimes even less than 50 per cent. of the total nitrogen. This fact must be taken into account in the examination of pathological urines. When such urines are low in total nitrogen, the urea determination alone is very misleading. The urines may be normal, and yet may contain only 5 gms. of nitrogen and 7 gms. of urea. Since the urea nitrogen sinks more rapidly than the total nitrogen, when the daily protein katabolism is diminished, it follows that some other nitrogenous products must at the same time become relatively more and more prominent. The most notable of these is one which has received comparatively little attention, viz., kreatinin (containing about 37 per cent. of nitrogen), and yet Dr. Folin has become convinced that kreatinin is present in all urines. When the total daily protein katabolism is reduced, kreatinin not only becomes more and more prominent as a katabolism product, but the absolute

amount of kreatinin eliminated is not at all affected by the diminution in the elimination of total nitrogen. The striking difference in the rôle played by urea and by kreatinin in the daily metabolism constitutes the pivotal fact upon which he has ventured to construct a somewhat new theory concerning protein metabolism. The constancy in the kreatinin elimination, as well as the constant presence of kreatinin in muscle extracts, when considered in connection with the enormous fluctuations in the urea elimination and the almost complete absence of urea, or of any adequate precursor of urea, in muscle extracts, indicates, it seems to him, that these two products are the representatives of two different kinds of protein metabolism. Since the katabolism which gives rise to kreatinin appears to be for each individual a constant quantity, no matter how much or how little nitrogenous food is taken, and since its chief decomposition product is demonstrably always present in muscles and other tissues, it seems justifiable to consider this metabolism the *tissue metabolism*. On the other hand, since the katabolic processes, which produce nearly all the urea, vary within such enormous limits and so directly with the supply of food protein, and since the urea is strikingly absent in the muscles, it seems fair to consider these katabolic processes as part of a more localized and specialized form of protein metabolism. This he has called the *exogenous metabolism*. The tissue metabolism represents the daily wear and tear of all the cells in all the different tissues, while the exogenous metabolism represents the specialized activities of certain definite organs, as the digestive tract and the liver. The question of the maximum protein consumption would seem to depend chiefly, if not exclusively, on the significance and importance of the exogenous metabolism. This exogenous metabolism may be regarded as only a preliminary process which has become necessary because our food products contain greater proportions of nitrogen than are necessary for the unimpaired maintenance of the normal full-grown organism. It would seem that we have at present no reason for assuming that anything like the 118 gms. of protein demanded by the standard diets is either necessary or advantageous for normal men with unimpaired digestions. On the other hand, we have no valid reason for assuming that the consumption of 118 gms. of protein is necessarily detrimental.

Distinctive Features of Animal and Vegetable Diets.—Prof. L. B. Mendel, of Yale University, read a paper on this subject. The ready digestibility of the meat proteids and the consequent availability of flesh products has always been contrasted with that of the proteids in plant materials. It is undoubtedly true that a considerably larger proportion of the vegetable proteids is lost to the organism in the ordinary forms of vegetable diet. The important fact which is usually overlooked is that the vegetable proteids *per se* are, as a rule, not less digestible than those from animal sources, a statement which is quite justified by the more recent experimental investigations. The poorer utilization ordinarily recorded is attributable to the form in which the nutrients are present; in other words, to the peculiar texture of the crude material. The physician of to-day should be in a position to accept at their current value certain familiar fallacies which are still widely current with respect to food products. One class of these rests upon the untenable assumption that the chemical composition of a foodstuff is an adequate

index to its nutritive value. This may be essentially misleading when either proteids or fats or carbohydrates are exhibited in a form which the digestive apparatus cannot satisfactorily appropriate. Referring to breads made from the coarser grades of flour, he said it was not intended to impugn their value from the clinical standpoint or to overlook the stimulating action which the indigestible ingredients may exert upon the motor functions of the intestine. We need, however, to draw a distinction between physiological action and nutritive value. The deficiency of ordinary vegetable dietaries in proteids has long been the subject of criticism by opponents of the vegetarian regimen. In considering this with impartial judgment we may, perhaps, more properly speak of a paucity, rather than a real deficiency, of proteids in the vegetarian dietary, if we accept the evidence afforded by the researches of Prof. Chittenden and Dr. Folin on the actual proteid needs of the body. And, furthermore, it is well to bear in mind the recent progress in the production of palatable plant products which are decidedly rich in proteids. The animal dietary, employed in moderation, is not so profoundly different from any other adequate dietary, and it has, to recommend it, a high degree of digestibility and palatability. In the field of dietetic therapy, particularly, radical changes of diet frequently supply essential factors or eliminate deleterious ones in most welcome and unsuspected ways; but, in general, the exclusive system has no adequate justification.

The Mechanics of Some Digestive Processes.—

This paper was by Prof. W. B. Cannon, of Harvard University. The object of his investigations had been to ascertain how different classes of foodstuffs, fats, carbohydrates and proteids are treated mechanically in the stomach and intestines, *i.e.*, at what rate they leave the stomach. The foodstuffs were administered in uniform amount and of uniform consistence, with a uniform small amount of bismuth added, and the passage of the food through the alimentary canal was watched by means of the X-ray. The animals experimented on were observed at regular intervals for some hours after feeding and the observations recorded. The researches obtained were presented in a series of lantern slides, the first of which showed the clearness with which X-ray shadows of food in the body can be seen. It was found that fat remains in the stomach a long time, leaving very slowly, and that carbohydrate stays in the stomach only about one-half as long as proteid. When there was a mixture of equal parts of carbohydrate and proteid the food did not leave the stomach as slowly as proteid nor so rapidly as carbohydrate; the discharge being intermediate in rapidity. With a mixture of proteid and fat, the presence of the fat caused the proteid to leave the stomach even more slowly than proteid alone. So, with a mixture of carbohydrate and fat, the fat caused the carbohydrate to leave the stomach more slowly than carbohydrate alone. It was evident, therefore, that the stomach readily lets go the carbohydrate food, which its juices do not materially affect, while it retains the proteid food, which its juices aid in digesting, until these juices have done their work. Peristaltic waves are passing all the time, but the proteid is prevented from issuing from the stomach by a mechanism at the pylorus. Evidence is accumulating, he said, which goes to show that this mechanism is controlled by free acid in the stomach. Carbohydrates do not unite with acid; free acid is secreted very soon, and they have a quick exit. Pro-

teids unite with acid to make acid proteid; free acid is delayed, and their exit is slow. Fats check the secretion of acid, and therefore have a slow outgo. The control of the situation is at the pylorus. The acid in the duodenum is known to close the pylorus and keep it closed, while that in the stomach has the effect of opening it. Thus, the acid chyme would go forth from the stomach, and with its acid close the gate behind it. But in the duodenum the acid gradually becomes neutralized by the alkaline secretions of the pancreas, until at last the acid in the stomach can again open the pylorus. Then again the pylorus is closed, and the process repeated.

The Influence of Preservatives and Coloring Matters and their Relation to Nutrition.—This was the subject of a paper by Dr. H. W. Wiley, Chief of the Bureau of Chemistry, U. S. Department of Agriculture. He said that the widespread use of these bodies in food products had attracted the attention of physiologists, physiological chemists, hygienists and food officials during the last few years. Two important questions are involved in the use of such agents in food products. One relates simply to the question of fraud or deception, and the other to the influence of these bodies upon health and digestion. The chief points to which he called attention were as follows: (1) There is no necessity for the use of chemical preservatives in food products. (2) There is no necessity for the use of artificial colors in food products. (3) It is not ethical to so prepare foods as to force people in general to eat preservatives and coloring matters, whether they want to or not. (4) Those who desire to eat preservatives and coloring matters in foods can have their foods specially prepared for them. (5) The fact that small quantities of preservatives do no harm is not equivalent to a verdict of "not guilty." (6) It is certain that a great many conscientious and painstaking observers have established with reasonable certainty the fact that preservatives and coloring matters at times work injury to health and digestion.

Immunity from Disease of Troops in Russo-Japanese War.—Col. Valery Havard, Assistant Surgeon-General, U. S. A., who was with the Russian forces in Manchuria, spoke on this topic. The rations of the Russian soldiers, he said, consisted largely of black rye bread, whose laxative qualities no doubt had a marked influence in preserving the health of the troops. Among the Japanese, beriberi was the cause of about three-fourths of the mortality of the army. It was a recognized fact that neither Japanese nor Russians were nearly so susceptible to typhoid fever and similar diseases as Americans and English.

Disastrous Effects of a Defective, Deficient and Inappropriate Dietary in the Field.—Dr. L. L. Seaman, late Surgeon of the 1st Regiment of Engineers, U. S. Volunteers, said that it was to be regretted that Prof. Cannon had not also presented the effects of a diet that no longer acted as a food, but as an irritant or a foreign substance, and so became a factor in the mechanical production of disease. It was this cause which contributed largely to bringing the American army almost to its knees in its short campaign in Cuba and Porto Rico in 1898. When whole regiments were suffering from diarrheas and intestinal catarrhs (and he had seen over 75 per cent. of a command victims of these disorders at one time), they were subsisted on a ration the component parts of which were principally fat pork, canned beef, baked beans, and canned tomatoes, the latter often in a state of fermentation. The natural result was that in many there was soon engrafted a pathological condition with grave lesions.

His own regiment, which landed in Porto Rico in perfect physical condition, lost over five tons in weight in three months. Nor were these dietary disasters confined to our own army. In the terrible war just ended in the Orient both contending armies suffered, but from entirely different causes. At Port Arthur the long-besieged Russians were compelled to subsist on a diet without vegetables, and they rapidly succumbed to the ravages of scurvy. On the other hand, the Japanese, living on a diet almost exclusively of vegetables (especially rice) and deficient in nitrogenous elements, had their ranks decimated by beriberi. In conclusion Dr. Seaman said: "The solution of the subject of a proper dietary for our own army is not a simple one, or if it is, the ruling authorities cannot be made to appreciate it. If the talent gathered here this evening would take an active part in the practical solution of this question, much might be done toward ameliorating the sufferings of a class of men whose trials in time of war are already sufficiently severe."

CHICAGO MEDICAL AND SURGICAL SOCIETIES.

Joint Meeting, held June 7, 1905.

Dr. L. L. McArthur, M.D., President of the Chicago Surgical Society, in the Chair.

Biological Aspect of Carcinoma.—Prof. G. N. Calkins, of Columbia University, New York City, and Biologist of the State Cancer Laboratory of Buffalo, by invitation, spoke on the biological aspect of carcinoma. He said that in these days in scientific matters, it was not remarkable that pathologists, chemists and biologists should join physicians and surgeons in a combined attack upon the carcinoma problem. All joined in the common task of ascertaining, if possible, the cause of this disease, a search which, as yet, is unsuccessful. After discussing at length the nature of the various stimuli which cause abnormal proliferation in differentiated cells, he mentioned studies of his own that were undertaken relative to the nature of division energy of the cell, to find out what it was that would control it, what would increase or decrease its activity, what stimuli were necessary, and what conditions of metabolism and morbidity had their effects upon it. He mentioned the theories in vogue which have to do with the explanation of the stimulus of division energy of the carcinoma cells. Were we to believe, with Cohnheim, for instance, that carcinoma was due to the fact that certain embryonic cells in the early period of growth of the organism became side-tracked, put away in a recess of the organism, so to speak, where they may remain ten, twenty, thirty, fifty, or sixty years before this division energy is stimulated? When the division energy is finally stimulated, the question arises again, What is the nature of the stimulus? The Cohnheim hypothesis demands an explanation of the renewed division energy no less than any other theory that has been brought out. Of the various theories advanced, he considered only two. The first, Marchand's, which was analogous to the stimulus of the gall-producing insect poison on plant cells; and, second, the parasite hypothesis.

Work on Mice.—He thought he could best make this clear by a brief statement of the work on mice, which they are doing in the study of cancer at the State Cancer Laboratory in Buffalo. They have in Buffalo some two hundred mice with carcinoma.

The original tumor mice, which Dr. Gaylord brought with him from Professor Jensen's laboratory in Copenhagen in February, 1904, died on the way from New York to Buffalo. The tumors were removed and put on ice. In three days, when mice had been obtained, the tumors were transplanted into normal mice. About forty per cent. practically of the transplantations took, and a large number of mice developed carcinoma. These make their appearance in from three to five or six weeks after inoculation, the tumor mice ultimately developing symptoms of cachexia, followed by death. The tumors that developed varied in size from one-third the weight of the mouse plus the tumor to one-fifth. These tumors were transplanted from mouse to mouse nine successive times in the Buffalo Laboratory. Professor Jensen had similarly transplanted the tumors from mouse to mouse for a period of two and a half years before Gaylord brought them from his laboratory to Buffalo, so that, altogether, there have been, in all probability, about thirty to thirty-five generations or transplantations of this tumor. These tumors are merely metastases from the original growth. The cells of the old tumor in each successive new environment were stimulated to grow and develop into a new tumor. According to the Marchand hypothesis, the primary stimulus which the first mouse received was a poison which originated from deranged metabolism, from malnutrition, or from some other product of morbidity in the organization of the mouse. Are we to assume that there is formed in every mouse morbid products which carry on the stimulus to the dividing energy of the cells? In other words, can the organism produce a toxin which acts as a continued cumulative disease factor? On the other hand, according to the parasite hypothesis, we might assume that the primary tumor of the original mouse was caused by poison from some parasite. To explain the stimulation of the division energy, some poison of one origin or another seems absolutely necessary. According to the parasite hypothesis, the toxin is produced by some parasite. Some advocates may argue that it is an initial parasite invasion; others a continued parasite infection which carries on the primary stimulus through generations of tumors, and causing the production of a large mass of cells which represents ten or twenty times the actual weight or size of the mouse. If the latter view is correct, we must say that every epithelial cell has within itself parasites which keep on producing a stimulus to the division energy. There is absolutely no morphological element in cancer cells which can be interpreted as parasites, and no morphological evidence of such parasitism. The advocates of the parasite hypothesis are forced to the conclusion that the parasite must be ultra-microscopic. The speaker did not wish to advocate that view. He said, however, that it was gaining ground throughout the scientific world. Schaudinn, the most eminent parasitologist, believes in the possibility of ultra-microscopic organisms. The Pasteur Institute has practically accepted this explanation for certain diseases. In November of last year the mouse tumor began to deteriorate; and the mice showed signs of natural immunity and ability to throw off disease. A great many mice spontaneously recovered. They have had altogether over 150 cases of spontaneous recovery from true carcinoma in mice. They thought the tumor material was growing

physiologically old, and that it would die out and their means of experimentation would be lost. A tumor, however, was transplanted to a new strain of mice, and the virulence of the cells was restored, so that the mice died in from three to five weeks after inoculation.

Dr. Clowes, chemist of the Laboratory, conceived the idea that the blood from such a spontaneously cured mouse might carry immunity. He inoculated some mice having tumors of small size with the immune blood from a mouse that had spontaneously recovered. This was done in a number of cases, and six tumors disappeared by this immune serum. Experiments have shown that immunity thus acquired has been efficient up to the present time, and has carried with it protection to the mice against reinfection.

The experiments have been tried subsequently in a slightly different form. In one such experiment, for example, 45 mice from the same source were taken; 23 of them were treated with cancer mush plus the immune serum from the mice which had spontaneously recovered; and 22 of them were treated with cancer mush plus the normal blood of normal mice. The only difference between them apparently was the immune factor from cases in which the mice had spontaneously recovered. In the 23 mice treated with this immune serum, 3 developed tumors. In the 22 mice that were treated with normal blood plus the serum, 10 tumors developed, or about the proportion of tumors successfully produced by the inoculation method.

This, in brief, he stated, was the position, from a biological point of view, of the cancer problem to-day. It is not known what causes the stimulus. It is not known that there is a parasite in cancer. It is not known that a specific poison produced in any way is the cause of carcinoma; nor is there sufficient evidence, on biological and cytological grounds, to justify the hypothesis of Farmer, Moore, Walker, and Bashford. Progress, however, is being made.

Dr. E. Wyllys Andrews read a paper in which he discussed the past and future surgery of carcinoma.

The X-ray in the Treatment of Carcinoma.—Dr. William Pusey said, in considering the use of X-rays in carcinoma, it would seem to be conducive to clearness, first, to determine the demonstrable facts concerning the influence of X-rays on carcinoma tissue; and, second, in the light of these, to consider clinical findings. In this way he discussed the subject. He emphasized the point that carcinoma tissue upon the surface could, with practically unvarying regularity, be destroyed with X-rays and be replaced by healthy scar tissue. But when we come to carcinomas more deeply situated, we were not in possession of many authentic facts; he had two cases from which, however, he could furnish definite post-mortem data. These two cases were primary carcinomas of the breast. One of these, an old woman, referred to him by Dr. E. Wyllys Andrews, had a large primary carcinoma of the breast without involvement of the skin, with enlarged axillary glands, and with spinal metastasis when the treatment was begun. The patient had vigorous X-ray exposures lasting about a month, with the production of a dermatitis which subsided completely before her death, about three months after the treatment began. At the post-mortem examination it was found that the breast was a mass of connective tissue, without any carcinoma tissue

remaining. The same was true of the axillary contents; they were converted into a mass of connective tissue without the remains of carcinoma. In the second case, an old woman referred to him by Dr. J. B. Murphy, there was a large primary carcinoma of the breast without involvement of the skin, and with enlargement of the axillary glands. She had vigorous treatment for six weeks, with the production of only a mild reaction. About three weeks after he saw her she developed an acute gastritis, from which she died. On post mortem, it was found by Dr. W. A. Evans that the tumor of the breast had been converted into a small fibrous mass, about the diameter of and two-thirds the length of an index finger. The carcinoma had been destroyed, and there remained in its place a small mass of scar tissue. In this case the axillary glands had not been affected. He believed that any epithelioma which had not metastases, and which had not deeply involved the subcutaneous tissue, might be symptomatically cured by X-rays. By symptomatically cured he meant to say converted into healthy scar tissue, as healthy scar tissue could be gotten after the excision of epithelioma. The superficial extent of the carcinomas was a factor of some consideration in the prognosis, but the most extensive epitheliomas that he had seen he had symptomatically cured with X-rays. He had seen lesions, involving areas of from thirty to forty or fifty square inches, converted into healthy scar tissue. As to the permanence of the results in epithelioma, some of his cases had gone now more than three years without recurrence, and he believed that whenever one was able to get a satisfactory scar, he might count upon a permanent result. In advocating the use of X-rays in the treatment of epitheliomas, and in the treatment of inoperable carcinomas, consideration should be given to the question—first, is the danger of metastases in epitheliomas increased by the use of X-rays? Second, is there danger of stimulating and rendering more rapid the growth in inoperable carcinoma by the use of X-rays? He believed that both questions could be positively answered in the negative. The histological findings, in the first place, were not such as to lend plausibility to the first of these questions. In carcinoma tissue exposed to X-rays, there was not first a stimulation of the growth, but a degeneration and a disintegration of the youngest peripheral cells. The vitality of the cells was lowered, their nuclei were converted into fragments, the protoplasm degenerated and stained poorly; the whole process was one of disintegration rather than of even temporary stimulation of the carcinoma cells. If there was an organism of carcinoma in these cells, it might be liberated in this process, but certainly any organism which might be so liberated would have already had the opportunity of invading other tissue, and the whole course of carcinoma showed that the danger of metastases arose, not from the presence in the circulation of organisms which might lodge, but from the floating away and lodging at other points of living carcinoma cells, and after X-rays liberated carcinoma cells, they were in no condition to proliferate. His experience had given no plausibility to either of these suppositions of danger. As to X-rays stimulating the growth of carcinomas which they could not cure, he had seen no cases which would lend weight to this hypothesis. On the contrary, he had had many cases in which the amelioration of the condi-

tion during X-ray exposures was explained away by calling attention to how frequently these cases did better than was to be expected.

Dr. Arthur Dean Bevan said the first thing that impressed him in the clinical study of carcinoma was that it is primarily a local disease. There certainly was a time in the history of every carcinoma when it was local, limited to one point, sometimes to a few points—concentric foci. One saw clinically occasionally epithelioma, for instance, which, when examined carefully, showed three or four points of invasion very close together. Clinically we saw carcinoma involving occasionally both breasts. These exceptions did not, however, disprove the statement that carcinoma was primarily a local disease. A second point that impressed him clinically was, that whether carcinoma was a parasitic disease or not, its history was that of a parasitic disease. Whether the researches of the future showed that it was a peculiar chemical stimulus that acted upon the cells and produced these changes, or whether it was a parasite, whether it was purely chemical and independent of any low form of life, or the result of some low form of life, made no difference, the clinical history of carcinoma would remain that of a parasitic disease. In regard to the present results of surgical treatment of carcinoma, these varied in different regions of the body, and the reports from different clinics varied widely. For instance, some surgeons who had made several hundred operations for epithelioma of the cervix state that possibly less than five per cent. of these cases were permanently cured. Some men even have gone so far as to state that less than one per cent. of such cases were permanently cured. Some men, even, have gone so far as to state that less than one per cent. of such cases are permanently cured by surgery. On the other hand, cancer of the body of the uterus furnished a far greater proportion of permanent cures. Carcinoma of the larynx furnished a comparatively large proportion of permanent cures; while carcinoma of the breast occupied a rather mid-position between extremely fatal carcinoma of the cervix and more favorable carcinoma of the larynx. An analysis of the different statistics of carcinoma of the breast would seem to show that surgical treatment furnished somewhere between twenty and possibly thirty per cent. of permanent cures. In this connection, he said that in the last few years there had been a great effort made to improve the statistics, so far as permanent cure was concerned, from surgical operations in treating carcinoma, and in doing this there had been a certain amount of juggling. In one well-known surgical clinic (Johns Hopkins Hospital Clinic), the reports of the surgical removal of carcinoma of the breast had been extremely favorable. An analysis of the facts, however, revealed this explanation, which, in part at least, accounted for their very favorable results, i.e., they had there divided their cases of carcinoma of the breast into two groups, and at the time of operation, or rather, after the operation was completed, if, in the judgment of the surgeon, the case was one which gave good prospects of a permanent cure, it was reported. If the case did not, in the opinion of the surgeon, give a good prospect of permanent cure, it was pigeon-holed in a second group which was not considered in the final statistics. In other words, only those cases which were, in the opinion of the surgeon, favorable to perma-

nent cure after the operation was completed, were reported. Statistics which were based upon the total number of cases operated upon would seem to give, in cases of carcinoma of the breast, the possibility of permanent cure in from twenty to thirty per cent. There was one other point that had impressed him very much, and that was the three-year limit in connection with carcinoma. It had been taught for some time that if a patient lived beyond three years without recurrence, there was little danger of such recurrence. A careful analysis of statistics would show that this was not so. Cases of carcinoma recurred three and a half, four, six, and even ten years after operation. There was a gradual diminution in the percentage of recurrences as the time period increased from the date of the operation. He agreed with Dr. Pusey as to the value of the X-ray in epithelioma. He thought it should not be used in cases of thick epithelioma, whether the lymphatics were involved or not. Superficial epithelioma was the form in which the X-ray was particularly of value. In thick epitheliomas, say, of the thickness of the thumb, on the lower lip, it should not be employed. There were two great dangers from the use of the X-ray. One was that it would produce serious burns in the hands of men who were not experienced in its use; the other was that it would do positive damage when it was used in a case where a surgical operation, if employed sufficiently early, would hold out a good hope of permanent cure, but where delay produced by the use of the X-ray wasted valuable opportunity and lessened the chances of permanent cure.

BOOK REVIEWS.

THE PRINCIPLES OF HEREDITY. With some Applications. By G. ARCHDALL REID, M.B., F.R.S.E. E. P. Dutton & Co., New York.

DR. REID, it may be remembered, has dipped into these fields before. He has made an excellent study of Alcoholism in its relations to Heredity, and now enters into an almost untitled, if not in some regions, untrod-den country—the study of heredity as influenced by disease.

It is true we have had much discussion on the hereditary problems connoted with many nervous diseases, notably epilepsy, various insanities, etc., but beyond the general enunciation of vague coincidences, it cannot be said that much progress has been made.

It is with some hope, then, of definite profit that we turn to the present volume, for the author has made it apparent that there is much valuable evidence bearing on the problems of heredity to be drawn from the study of disease.

That much needless discussion about the transmission of acquired characters might have been avoided, if the facts of human pathology had been reviewed, is one of the theories of the author. He believes that parental acquirements are never transmitted—a belief difficult to reconcile with some of the pathologist's conceptions of immunity. With the more strictly biological problem of the relation of environment to the germ cells and consequent racial change we cannot hope to cope in this short review.

The author believes in the von Baer recapitulation theory and seeks to place it on a firm foundation.

The author's introductory chapters review in brief the main hypotheses concerning the problems of heredity. They are clear and very helpful to the student,

such as the medical man, who perforce can only occasionally stray outside of the field of his practical labors. He is, moreover, particularly interesting in discussing the relation of disease to the problems of evolution, the origin of the zymotic diseases, the bacteria as social forces, the mental problems as determined by the use of narcotics, etc.

In the closing chapters, where educative factors are discussed, the author has a number of interesting and suggestive topics.

By way of criticism, the general style is anything but happy. And again, the author has been extremely unsystematic in his collection of material. Some of the facts being coordinate and logically arranged, others thrust pell mell, confused and at time almost negating the deductions drawn from them.

The book is not to be followed as an authority by any means. It is instructive, useful, entertaining in places, but must be read discriminatingly.

DISEASES OF THE BLOOD. By Prof. D. P. EHRLICH, of Frankfort, Prof. K. VON NOORDEN, of Frankfort, Dr. A. LAZARUS, of Berlin, and Dr. F. PINKUS, of Berlin. Edited by ALFRED STENGEL, M.D., Professor of Clinical medicine in the University of Pennsylvania. W. B. Saunders & Co., Philadelphia and London.

It is a far cry from the consideration of the liquor sanguinis of the early clinicians to this modern treatise of 700 pages on the diseases of the blood. It is not many years since the two words here written conveyed almost all of the information about the blood that was known. We venture to say that many works of this size, or larger, will be necessary in the near future to tell all that is known, and of practical value only, about the blood.

Blood investigations offer to most men of studious habits a fascination that cannot but render this volume particularly welcome. When it is recalled that a good microscope, a few accessories, and "sitz fleisch" are the only requisites for a mastery of this branch of work, it is not to be wondered at that so many medical men take an active interest in the study.

Few of the readers of the *MEDICAL NEWS* need to be told that this volume is without doubt the most authoritative and extensive of any modern treatise. As for its scope, it includes a valuable summary of the normal histology of the blood, with full consideration of the technical methods of investigation. Anemia, in its various types, chlorosis, leucemia, lymphatic and myeloid constitute the main subjects of discussion. It is unnecessary to further designate the details of the subject-matter of the book. We feel that the profession is fortunate in this, as in the other representatives of the "Nothnagel Series," that one of the leading German monographs is so well rendered in English for its use.

A TREATISE ON PLAGUE. Dealing with the Historical, Epidemiological, Clinical, Therapeutic and Preventive Aspects of the Disease. By W. J. SIMPSON, M.D., F.R.C.P., D.P.H., Professor of Hygiene, King's College, London, etc. The Macmillan Company, New York.

A BOOK of this type is very stimulating. We are only too prone to believe that epidemics are things of the Middle Ages. Many of us are tinctured, if not saturated, in the belief of our own superiority in matters hygienic, and it comes as a rude shock to realize that epidemics, such as the plague, come and go—willy nilly—modern science or so-called "ancient superstitions," notwithstanding.

With reference to the plague this book gives us much

to think of. Plague, the author tells us, takes its own time and opportunities for its development, and it is unwise to be lulled into a sense of security by its apparent inpotency to spread in a particular country. Confined to remote corners of China, India, Persia, Arabia, Africa, its power was thought to be extinct. In Bombay, where it broke out (after a lapse of over two hundred years), no one dreamed that the modern English hygienists could not speedily eradicate it—but since 1896 to the present day thousands and hundreds of thousands of lives have been lost. So many in fact have been the deaths that medieval legends of devastation almost pale into insignificance. One quarter of a million inhabitants of the Punjab died in 1904 of this disease.

All of this makes for much concern on the part of the sanitary officers of this country. For can it not be said that with increasing population we in some regards are approaching unsanitary conditions not much removed from those found in plague-stricken districts? To the new possessions and their new diseases, the study of these tropical disorders becomes more and more imperative.

Here is a judicial book, a well-written one, authoritative, interesting and withal of paramount importance to every hygienist in the country.

PRACTICAL PEDIATRICS, a Manual of the Medical and Surgical Diseases of Infancy and Childhood. By Dr. E. GRAETZER, Editor of the *Centralblatt für Kinderheilkunde* and the "Excerpta Medica." Authorized translation, with numerous additions and notes, by HERMAN B. SHEFFIELD, M.D., Instructor in Diseases of Children and Attending Pediatricist (O.P.D.), New York Post-Graduate Medical School and Hospital; Visiting Pediatricist to the Metropolitan Hospital and Dispensary. F. A. Davis Company, Philadelphia.

THE German author calls this "a reference book which will enable the practitioner *cito, tuto et jucunde*, to familiarize himself with all subjects pertaining to diseases of childhood"—a very large claim for a small book. Indeed, we must forget such claim, and look upon the book as a concise manual of pediatrics, intended to cover the whole field, but not to dig deeper than the undergraduate's level of knowledge. Not the least commendable of the many good things in the book are the notes by the American editor, for they represent very well the latest American practice. In this edition the alphabetical arrangement of the German edition has fortunately been discarded in favor of a grouping under appropriate headings, such as, Infant Feeding, Disorders of Nutrition, Diseases of the Newly Born, Diseases of the Blood and Spleen, etc. These subjects constitute the main portion of the book, the various diseases being taken up in a systematic and very helpful way. An agreeably surprising feature in such a small book is the frequent reference to authorities, and the care with which the author places before his reader the various opinions in vogue. The rest of the book is given up to "Materia Medica and Therapeutics," under the headings Hydropathy, Electricity, Massage, Climatology, Dietary and Materia Medica proper, this last being a comparatively useless alphabetical list of drugs and their uses. Dr. Sheffield has written the chapter on Palatable Prescribing, which contains suggestions as to the giving of medicine to young children. The original matter is considerable, and the work of others well presented, so that, as a "manual," we consider the book one of the best that we have seen. It is made additionally attractive by fine paper and type and flexible binding.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Sixteenth Session, held at Detroit, Mich., May 30, 31, and June 1, 1904. Edited by LINNAEUS EDFORD LA FÈTRA, M.D. Vol. XVI. Reprinted from Archives of Pediatrics, 1904-1905.

THE material included in these transactions is of a high order of merit, and a summary of the more important articles will best indicate the quality of the book: "Considerations Regarding Substitute Feeding during the First Year," by Rotch, "Disturbances of Digestion from Too High Fat Percentages," by Holt, "The Influence of Laboratory Feeding on Two Hundred and Sixteen Infants with Disease of the Gastro-enteric Tract," by Maynard Ladd, "Nervous Exhaustion in Infants," by W. P. Northrup, "The Rachitic Hand," by Koplik, "Acute Myocardial Insufficiency in Children's Infections," by F. Forchheimer, "Acute Leucemia in Early Life," by F. S. Churchill, "Bronchial Asthma in Infants and Children," by L. E. La Fètra, and other articles of equal interest and value. In size and binding the book conforms with its predecessors.

A TEXT-BOOK ON THE PRACTICE OF MEDICINE, FOR STUDENTS AND PRACTITIONERS. By JAMES MAGOFFIN FRENCH, A.M., M.D., formerly Lecturer on the Theory and Practice of Medicine, Medical College of Ohio. Second Revised Edition. William Wood & Company, New York.

We reviewed the first edition of Dr. French's book some two years ago, and there is not much additional to be said with regard to the second edition. Certain changes have been made in the chapter on the intestinal parasites and with regard to some of the recent developments of parasitology generally as it is of clinical interest. The volume is not quite large enough to compare with the ordinary text-books on medicine and not quite condensed enough to be considered a manual. It would scarcely do for a reference book, and yet is rather large for a work to consult in the few minutes that a busy practitioner allows himself to get further information as to a disease. As it goes, however, the material is well selected and carefully put together.

A TEXT-BOOK OF MEDICAL PRACTICE FOR PRACTITIONERS AND STUDENTS. Edited by WILLIAM BAIN, M.D., Duhr., M.R.C.P. Lond. With illustrations. Longmans, Green & Co., London, New York and Bombay.

THE book-making in this volume is excellently done. It is printed on thin paper, which enables the publisher to get it within the limits of reasonable size for a hand-book and yet furnish a thousand pages of reading matter. The type is not as large as that often selected for text-books and as a consequence there are in most places eight hundred words and, in some places where the matter is less important, one thousand words to the page, yet all is readily legible without eye tire. Altogether there are over eight hundred thousand words in a volume that is not cumbersome. The text-book has for contributors some of the best known among the younger investigating medical men of London. For those who wish to know the present status of progressive clinical medicine in England we are acquainted with no text-book that will be so eminently helpful for the purpose. It contains an immense amount of information, not often given in text-books of medicine, and yet that the progressive practitioner should have close at hand. For those who feel that they want a mirror of English practice handy and easy to consult we can heartily recommend the book.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY FOR STUDENTS OF MEDICINE. By JOHN H. LONG, M.D., Sc.D., Professor of Chemistry in Northwestern University Medical School, Chicago. P. Blakiston's Son & Co., Philadelphia.

THE tendency in medicine is definitely chemical. Physiological and pathological processes are being interpreted and furthermore understood when considered in the light of the physicochemical reactions. Of the numerous physiological chemistries, and most of them are good, this new claimant for honors possesses qualities that entitle it to commendation. It possesses the merit of simplicity and conciseness. It deals with the elementary, rather than with the advanced problems of its special field, and hence is to be considered an excellent work for the beginning student. Being, furthermore, written in a very simple style, there can be no excuse on the part of the student that it cannot be comprehended.

We believe that it will serve a very useful purpose, but students must not stop their physiological chemistry reading with this treatise. It will serve as a framework, on which the details may be hung later.

A TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. By JAMES W. HOLLAND, M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. W. B. Saunders & Company, Philadelphia and London.

THIS is an excellent text-book for medical students. Coming as a new book, it has all the advantages of freshness of statement and brightness of method. In this sense it may be said to be the most modern of the text-books offered.

Furthermore, Holland's work presents, or is rather written from the standpoint of the newer chemistry; not in the foreground, it is true, but in the safe middle distance, and as such the old facts which have been so familiar as to be so easily forgotten, have taken on new sidelights and once more become of interest. It is a book to be commended to student and graduate alike. It deals with both inorganic and organic chemistry; has an abundance of toxicology—just why is not apparent—and excellent chapters on physiological chemistry, especially the one on the examination of the urine.

BOOKS RECEIVED.

PHYSICAL DIAGNOSIS. By Dr. R. C. Cabot. 8vo, 577 pages. Illustrated. Wm. Wood & Co., New York.

SUPERSTITION IN MEDICINE. By Dr. H. Magnus. 12mo, 205 pages. Funk & Wagnalls, New York and London.

THE SURGICAL ASSISTANT. By Dr. W. M. Brickner. 8vo, 361 pages. Illustrated. International Journal of Surgery Co., New York.

ADDRESSES AND OTHER PAPERS. By Dr. W. W. Keen. 8vo, 442 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

ATLAS AND TEXT BOOK OF TOPOGRAPHIC AND APPLIED ANATOMY. By Dr. O. Schultze. Edited by Dr. G. E. Stewart. 8vo, 189 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

TREATISE ON ORTHOPEDIC SURGERY. By Drs. E. H. Bradford and R. W. Lovett. Third edition. 8vo, 670 pages. Illustrated. Wm. Wood & Co., New York.

A MANUAL OF CLINICAL CHEMISTRY, MICROSCOPY AND BACTERIOLOGY. By Drs. M. Klopstock and A. Kowarsky. 12mo, 296 pages. Illustrated. The Rebman Co., New York.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, NOVEMBER 25, 1905.

No. 22.

ORIGINAL ARTICLES.

THE TREATMENT OF BRONCHITIS IN CHILDREN.

BY JOSEPH E. WINTERS, M.D.,

OF NEW YORK;

PROFESSOR OF THE DISEASES OF CHILDREN, CORNELL UNIVERSITY
MEDICAL COLLEGE (IN NEW YORK CITY).

THE treatment of bronchitis in children necessitates intimate acquaintance with the structure of the bronchial wall, and with every alteration in this structure at each step and every hour of the morbid process.

These walls unite unique anatomical constituents, each and every one of which influence the symptoms and the treatment of bronchial inflammation, and should, therefore, be present in the mind of every practical physician.

From *without* inward, a bronchus is composed of an *external* fibrous coat of dense fibrillated connective tissue with imbedded cartilages. The cartilages are for keeping the tubes open under varying conditions of respiratory pressure. Without this framework the tubes would collapse with inspiration. A middle coat of transverse muscular fibers, which at their ends are inserted by a ligamentous attachment into the inner surfaces of the cartilages, a short distance from their tips, and into the external fibrous coat. These transverse muscles dilate the bronchus with inspiration. An internal mucous coat, known as the mucosa.

The mucosa is composed of three coats: From *within* outwards, an epithelial layer; a clear homogeneous basement membrane, giving attachment to the epithelium; an *inner* fibrous coat of longitudinal elastic fibers, containing a very copious and an exceedingly fine network of blood vessels, likewise longitudinal. This is also known as the vascular coat. The interposition of a perfectly homogeneous basement membrane between the epithelium and the loose longitudinal network of vessels is of great practical value in bronchitis. This clear, homogeneous layer is most aptly designated a limiting or boundary membrane, owing to its intervention between those layers in which the primary, all-determining changes of bronchitis take place, *i.e.*, congestion, desquamation of epithelium.

Superimposed in all these structures are numerous mucous glands.

In no organ of the body is such a complex variety of structural elements involved in an inflammation as in bronchitis.

STRUCTURE OF SMALL TUBES.

Bronchi, 1-24 of an inch or less in diameter, are so different in composition from those above this size that when they are the seat of inflamma-

tion the type of symptoms announce their implication. They are destitute of cartilaginous framework and of ciliated epithelium. They contain no mucous glands. The basement or limiting membrane diminishes *pari passu* with that of the bronchi, and is imperceptible in their smallest ramifications—of gravest import in congestion. These tubes receive instead of giving support. They have a peculiar zigzag course—this is most unfortunate with increased secretions.

FINAL ENDING OF DIFFERENT COATS.

The *external* fibrous coat becomes the perilobular capsule, the inter-lobular tissue, and is continuous with the sub-pleural tissue. The unity of the outer wall of the bronchus, and the perilobular and sub-pleural structures, in conjunction with their common source of arterial supply, have pathological bearings of the very highest importance. The *inner* fibrous elastic coat becomes the alveolar wall.

VASCULARIZATION OF BRONCHI.

The bronchial arteries form two plexuses in the bronchial wall. An outer *transverse* plexus in the muscular layer for supplying the muscular coat, and the external fibrous coat, the perilobular capsule, the inter-lobular tissue, the pleura the bronchial glands and the nervous ganglia.

An inner *longitudinal*, richer plexus, in the *inner* fibrous coat, for supplying the mucous membrane *exclusively*. The capillaries of this plexus, to the bronchi of the fourth division, empty into the pulmonary veins, and are, therefore, in direct communication with the left heart. These veins have no valves. *Injection of them produces injection of the bronchial capillaries* before the pulmonary arteries—of serious concern in bronchitis with mitral lesion.

AERATION OF BLOOD IN BRONCHIAL CAPILLARIES.

As the bronchial capillaries are exceedingly small, and as a stream of air is constantly passing over them, *when the tubes are clear*, the blood is probably aerated before mingling with the arterialized blood of the pulmonary veins.

There are still further anatomical factors equally essential to a basis for competent physiological treatment.

The pulmonary vessels hang in the bronchial tree, and exceed in size the tubes which support them—notably so among those tubes which are destitute of protective framework. To the large tube the accompanying pulmonary artery is loosely attached, while it clings tightly to the defenceless small tube.

The area of the pulmonary capillaries is less than the area of the systemic capillaries. The amount of blood passing through these vessels at each cardiac contraction is exactly equal to the

amount propelled into the systemic circulation. As these vessels lean upon the small bronchi for lateral support, increased pressure in the pulmonary vessels in a young child endangers the integrity of the lumen of the bronchi—every pulmonary congestion in an infant presages evil.

In children up to the fourth or fifth year there is a tendency to rapid and dangerous extension of every bronchial catarrh to the smaller bronchi.

This is explained by the anatomical peculiarities at this period. In young children the longitudinal elastic tissue of the fibro-vascular coat is abundant and loose, and offers slight restraint when pressure in the loosely held *longitudinal* vessels is increased by inflammation.

After the fifth year these structures rapidly assume the adult type, the connective tissue becoming dense and binding, restraining the vessels as in the adult.

What could be more intricate, what more fraught with perplexity and dismay than bronchitis of the small tubes?

Inadvertent, inattentive treatment invite inevitable disaster, while expert physiological management affords results both felicitous and gratifying.

ALTERATIONS IN THE BRONCHIAL WALL IN ACUTE BRONCHITIS.

Prognosis, and enlightened recourse to therapeutic measures, are based upon and determined by the alterations in the *inner* vascular plexus, at the inception and during the progress of bronchitis.

The inception of bronchitis is *distention of the loose longitudinal plexus in the inner fibrous coat*, immediately beneath the basement membrane. The distended vessels push the basement membrane before them and appear as villous-like prominences on the surface. The basement membrane becomes edematous and is thrown into folds. Sometimes the vessels burst and small hemorrhages occur into the mucous membrane. Other vessels are so engorged as to appear like small cavities filled with blood-corpuscles.

The rapidity with which other changes succeed this primary alteration is variable. In ordinary cases the epithelium desquamates in twenty-four hours; in severe inflammations as from influenza and the exanthemata, in four to six hours. The cilia are first thrown off. At this stage there is little or no secretion of mucus, merely redness and tumefaction.

Uncontrolled distention of the vessels, however, is quickly followed by exudation and by increased secretion from the mucous glands. Large quantities of mucus are generated from the epithelial cells alone, while at the same time it wells out from the ducts of the mucous glands—the tubes are rapidly inundated.

Prompt physiological intervention must be resorted to at inception to intercept those further secondary changes which incite complications and fatal terminations.

If not restrained, the inflammation soon extends into the minute bronchi. This is heralded by recession of the lower ribs with inspiration. Blocked tubes, receding chest walls, and weak inspiratory muscles superinduce alveolar collapse as an epiphenomenon.

To obviate fatal issue, extension to the small tubes must be forestalled.

In children under two years bronchitis is one of the most fatal diseases of childhood. Out of 1,000 deaths from this disease, 419 were in children under two, and 490 were under five years of age; nearly all of the remainder (457) were in adults over fifty-five years of age.¹

An especially fatal form of this disease is that which comes soon after birth, as a result of imprudence in bathing, from low temperature of the room, or from exposing the child to the open air.

There are two types: One is sudden in accession, rapid in course, involving the *inner* plexus. Active physiological counteraction must be instituted at once, or the issue is fatal in a few days.

The other is characterized by insidiousness of invasion, indistinctness of symptoms and physical signs—sometimes illegible—obstinacy of course, yielding little if at all to treatment.

If after the lapse of several weeks this latter form terminates fatally, post mortem discloses involvement of all the ramifications of the *outer* plexus of the bronchial arteries, *i.e.*, the external fibrous coat of the bronchi, the peri-lobular capsule, the inter-lobular connective tissue, the subpleural tissue, the bronchial glands, and even the nervous ganglia. The capillaries in the connective tissue of the nervous ganglia are engorged, and by pressure on the ganglia cause spasmodic dyspnea which supervenes in paroxysms most terrible to witness.

The only type of bronchitis of which a clinical account is requisite here, is that of the small tubes—suffocative bronchitis, suffocative catarrh. Always secondary, due to rapid extension from the larger tubes, its accession is so abrupt, so marked by profound collapse, small feeble pulse and anxious countenance, as to give the appearance of a primary affection.

Sudden distention of the inner plexus, by hyperemic swelling of the mucous membrane, may prove fatal before the stage of mucopurulent secretion. The rapidity of the respiration and pulse are out of all proportion to the other symptoms, and the respirations relatively accelerated far beyond the pulse rate. I have seen four cases in young infants where the respirations were 104 in two, and 108 and 110 in the others. Two pulse beats to one respiration is not uncommon, instead of three or four beats to one respiration, as in the normal condition.

The respiratory act is characteristic: A short labored inspiration, in which all the accessory

¹ One-half the cases in children under five years are fatal. (Samuel West)

inspiratory muscles participate, marked recession of the lower part of the thorax, and retraction of all the inferior intercostal spaces, followed by prolonged difficult expiration, in which the abdominal muscles participate. Whenever the expiration becomes prolonged in bronchitis, extension into the fine tubes is to be apprehended.

AUSCULTATION.

At both bases posteriorly, and especially over those narrow strips of lung between the angles of the ribs and the spine, and the tongue-shaped process of lung which overlaps the heart, fine crepitations are heard; or the tubes may be so blocked by tough mucus, or so narrowed by tumefaction of the mucous membrane, that neither crepitations nor respiratory murmur are audible—the breath-sound entirely obliterated over both bases posteriorly.

TEMPERATURE.

The temperature has no diagnostic value. A patient may have a temperature of 104° F. at one hour, and of 100° F. at another time of the same day. A paroxysm of extreme dyspnea, great restlessness, constant tossing from side to side, may be attended by a temperature of 105° F., or even more. After a fit of coughing ending with vomiting, followed by sleep from exhaustion, the temperature drops to 100° F.

TREATMENT.

Clinical experience and pathological investigation, yield ample proof that bronchitis in a young child is never slight.

The coryza of to-day may before the morrow spread to the small bronchi, for, like its congener, catarrhal croup, its onslaught is commonly at night. To forestall and thwart extension is the pith of treatment. If this is accomplished fatal issue is averted. This is well-nigh attainable in every instance.

Distention of the branches of the bronchial arteries is the first deviation from the normal. The design must be to restrain and counteract this at its inception.

By the cutaneous capillaries, by the intestinal mucous membrane, and by cardiac inhibition, the initial lesion may be subdued and abridged; irritation of the mucous membrane may be abated by the air the patient breathes—mild diaphoresis, gentle catharsis, cardiac sedatives, warm soothing air for the irritated respiratory surface.

The temperature of the respired air should be uniformly 72° F.—day and night—sun exposure and open fire if practicable. Ventilation must secure at all hours pure, fresh air.

The child should be in a crib—never on a bed. The crib should be flannel-lined and be in the center of the room—never near a wall, window or door. Sometimes it is necessary to place screens about the crib to avoid draught.

Light flannel should envelop the child's body, arms and legs. The flannel shirt should be se-

cured to the diaper by safety-pins, back, sides and front; long worsted stockings should be worn and likewise fastened to the diaper. The wrap and shirt must be loose and open in front, secured by tapes or safety-pins, assuring ready access for physical examination. A duplicate suit is to be kept in readiness. A quick hot bath precedes flannel envelopment.

In a case of moderate severity, nine-tenths of the treatment has been compassed.

DRUGS.

In severe cases the drug of unfailing, universal efficacy, is aconite. The bronchial arteries, branches of the aorta or intercostal arteries, subject to direct, immediate, forcible cardiac pressure, surge with blood. To restrain and limit this is the aim. Through this drug arterial pressure is promptly circumscribed. Maximum, frequent doses during the first hours; diminished, less frequent doses after four or six hours; early abandonment. It should be given in water only—tasteless, non-nauseating, it does not affect appetite. For a child of one year,

R Tr. aconite (Fleming) gtt iv
Aq. destillat ounces iii

M. Sig. One teaspoonful every fifteen minutes for one hour; every half hour for four or six hours; then every hour for twenty-four more hours.

Turgescence ceasing, the remedy is discontinued.

Arterial pressure is lessened by diaphoresis. Sweet spirits of niter is the pre-eminent diaphoretic. Niter, citrate of potassium, and spirits Mindererus may alone be used where aconite is not urgently indicated, and follows discontinuance of it. The combination often nauseates, and even more frequently affects the sense of taste so disagreeably that nourishment is persistently refused.

Intestinal elimination, diaphoresis, aconite and niter make up the febrifuge measures. Other antifebriles (baths, sponging, coal-tar derivatives) are, individually and collectively, contra-indicated.

Cold to the cutaneous capillaries is unphysiological, pernicious; conduces to extension.

STAGE OF SECRETION.

Excessive secretion may inundate the bronchi and must be anticipated and intercepted.

The agents which diminish secretion are camphor, carbonate of ammonia, nux vomica, oxygen inhalations and counter irritation. Spirits of camphor is the most valuable drug agent.

For a child of one year,

R Spirits camph. 3i
Saccharin gr. i
Spts. etheris nit. (for preventing precipitation of camphor) 3ii
Syrp. tolut. (for diminishing pungency) ..3ss
Aq. gaulth. q.s. a.d. 3iii

M. Sig. One teaspoonful every half hour.

Carbonate of ammonia in one grain doses is a valuable adjuvant to this mixture, but often

provokes nausea. *Nux vomica* has the same objection.

When the tubes are loaded with tenacious secretion, mustard is of priceless service. One part mustard, six parts flour mixed with cold water and white of egg, and applied as a paste between two layers of thin linen, covering the entire region where moist sounds are heard, left on twenty to thirty minutes and renewed every two or four hours, according to the condition of the skin.

Where these resources have not been initiated at the opportune moment, or a child has not been seen until the bronchi are flooded with secretions, superinducing laborious and yet shallow breathing; on auscultation very few râles or none at all are heard, breath-sound absent over both bases posteriorly; pulse exceedingly rapid and small and disappears under the finger; suppressed cough from CO₂, medical art is put to its surest test, for even this extremity is surmountable by skilful adaptation of that knowledge and power born of pathology and experience.¹

Impetuous stimulation is the common, almost universal blunder. The deluged tubes must be unloaded, emptied; respiration and oxygenation re-established. Blocked bronchi, soft yielding thoracic walls; weak, exhausted inspiratory muscles, make lobular collapse irresistible. The only redeemable, relievable factor is the obstruction to the passage of oxygen.

Witness the breathing become more and more shallow, until there is only slight movement of a few ribs and faint jerking contractions of the diaphragm; every untoward phase is accentuating swiftly. The swallowed sputa produces vomiting: The diaphragm, the abdominal muscles, the muscles of the lower part of the chest compress the thorax as in a vise. The tubes are squeezed, the contents forced out, mucopus wells out of the mouth. A sudden deep inspiration, the whole chest expands, the breath-sound is heard over the entire pulmonary area. Air has penetrated the most remote air-sacs; oxygenation is renewed, blood-cells revived, re-animated, cyanosis is replaced by vivid pink!

The position the child was in while vomiting—face downward—is maintained, the secretions gravitating to larger, sensitive bronchi, induce cough and are ejected in place of being swallowed. The cue is obvious—emetics, postural treatment.

When the air tubes are blocked by tenacious mucopus they can only be freed by active emesis. This should not be repeated more than once or twice in the twenty-four hours. Two or three clearings are adequate. The child must be kept in the prone position to secure gravitation of secretions to a sensitive mucous surface to avoid refilling. Oxygen inhalation must be continuous in this critical state—even during sleep.

These forceful resources are supplemented by

mustard packs and maximum doses of spirits camphor and carbonate of ammonia.

PROGNOSIS.

Hitherto harassing attacks of coughing become weaker or cease altogether, owing to obtunded sensibility from CO₂; suppression of râles without corresponding amendment; laborious and yet shallow breathing with recession of lower part of the chest walls and sinking in of the intercostal spaces; tympanitic distention of abdomen interfering with descent of diaphragm; sudden alteration of pulse-respiration ratio; small, rapid, irregular pulse which disappears under finger; apathy, drowsiness, ashy-gray face; fulness of superficial veins, cyanosis, cold extremities, are all most unpropitious tokens.

Diminution in frequency, and increase in depth of respirations, are the first indications of amendment. Râles and breath-sounds return, arteries become fuller, veins less full. In every chest affection in a child the abdomen must be solicitously watched to anticipate apprehensive distention. Dietetic care, and freeing from swallowed sputa, anticipatory of fermentation and tympanitic distention is uniformly obligatory.

INFLUENCE OF PREVIOUS FEEDING ON PROGNOSIS.

A young child previously fed on any patent or proprietary food, on pasteurized or sterilized milk, or for a prolonged period on condensed milk, almost invariably succumbs to bronchitis of the small tubes. The erroneously fed, flabby, soft-of-flesh, rickety child with hypersecretion, must be stimulated after emptying the air channels by vomiting. He who individualizes is the highest type of the medical practitioner.

Laryngo-tracheitis, tracheo-bronchitis, and bronchitis of the large and medium-sized tubes are usually broken and ended by the proper management.

An efficient remedy for harassing cough in inflammation of the upper respiratory passage is oleum ricini.

For a child of two years:

℞ Olei ricini	oz. ½
Saccharin	gr. ii
Acacia pulv.	q.s.
M. Ft. Emulsio et adde.	
℞ Spts. etheris nitrosi	oz. i
Aq. calcis q.s. a.d.	oz. iii
M. Sig. One teaspoonful every hour.	

When cough is distressing, counter-irritation over larynx and sternum may be superadded in the form of flaxseed poultice with mustard sprinkled over its surface.

In older children where the irritation of coughing superinduces nervous irritability, it may become necessary to supplement the prescription by small doses of codeine.

In inflammation of larynx, trachea or bronchi with much temperature, aconite should always be to the fore.

¹ The cases mentioned on page 2 all recovered.

STEAM INHALATION.

Steam inhalation does not meet one physiological, pathological or symptomalogical indication that is not better, more completely and far more wisely fulfilled by the breathing of warm air, by dilatation of the cutaneous capillaries, by aconite, and by counter-irritation.

Steam inhalation increases susceptibility to cold, to catarrh of the larynx and bronchi—to catarrhal croup.

A croup kettle, therefore, must never be used except for croup.

25 West Thirty-seventh Street.

A PIESEOMETER FOR THE ACCURATE DETERMINATION OF ABDOMINAL RIGIDITY.

BY THERON WENDELL KILMER, M.D.,
OF NEW YORK.

It frequently happens that the physician, when examining a patient, notes a rigidity of some portion of the abdomen. A few hours later, or the next day, he examines the same patient and finds that to his touch the same part of the abdomen, which he had previously examined, dis-



plays either a greater or smaller degree of rigidity.

This sense of feeling is imparted only to the examining hand. We cannot put down on paper how rigid the abdominal wall was, nor how much more rigid it has become during the last few hours or days. We cannot write to a medical friend in another city how rigid we have found the abdominal tissue, for our friend's sense of touch would be altogether different.

To sum up the above illustration: It has formerly been found impossible to determine

abdominal resistance with any degree of uniformity. With the present instrument, of which an illustration is shown, it is possible to obtain data which are of much service both in diagnosis and in the keeping of the histories of cases. A surgeon can keep track of the rigidity of the abdominal wall in supposed cases of appendicitis and peritonitis, or in cases of abdominal tumors.

In the experiments which I have made with this instrument during the past six months it has been successfully demonstrated that there is no uniformity of muscle resistance, that is to say, we cannot have any one unit represent normal resistance. We cannot say that the abdominal resistance in a certain case is so much and then infer that all other abdomens, to be in a normal condition, must register the same amount of resistance. There are many factors, such as abdominal fat, position of the patient, whether the patient is asleep or awake, quiet or crying, etc., that make it impossible to have any normal index of resistance. Every one is a law unto himself when it comes to measuring muscle rigidity. What can be definitely determined, however, in any individual patient, is that one can tell whether that given individual abdomen is more, or less, rigid than it was at a previous examination.

A description of the pieseometer is as follows: A delicately tempered and accurately tested spring is concealed in the handle of the instrument. This spring is accurately gauged so that it will take so many pounds' pressure to press the small knob at the end of the plunger a given distance into the tissue, muscle for instance. This plunger is so arranged that it may be drawn out to any distance from one-eighth of an inch to three inches. The metallic disk is used, as it were, as a horizon line. The index of resistance of a given part of an abdomen is a fraction, the numerator of which is the number of pounds' pressure which it takes to press the plunger up to the horizon line (metallic disk) into the abdominal tissue. The denominator of this fraction is the length at which the plunger was set. Example:

$$\frac{2 \text{ (pounds pressure required)}}{\frac{1}{2} \text{ (inches, the plunger was extended)}}$$

Therefore, in the above example, it took two pounds' pressure to press the plunger set at half-inch up to the disk into the abdominal wall. There is a sliding indicator which remains each time at the number of pounds' pressure required to press the plunger in any given distance.

Let us suppose we wish to ascertain the resistance of the right side of the abdomen over McBurney's point in a man of medium weight whose abdomen does not possess a large amount of fat. We should have the patient in the dorsal position with thighs slightly flexed on abdomen, and legs slightly flexed on the thighs—the usual position when palpating an

abdomen. Setting the plunger at $\frac{1}{2}$ inch and pushing back the ring index indicator to zero, we press the plunger against the skin, pressing straight down until the horizon line (round metallic disk) touches the skin. Then reading the number of pounds' pressure required to press the plunger half an inch into the abdomen, we have an index of resistance for this individual case of perhaps $\frac{3}{2}$ which means that it took 3 pounds of pressure to press the plunger into the abdominal wall a distance of half an inch. This index of resistance ($\frac{3}{2}$) is noted in the history. Now, in a given time, a few hours afterward, or next day, a second examination is made over the same point, with the plunger set at the same distance ($\frac{1}{2}$ inch). If it now takes $3\frac{1}{2}$ pounds' or 4 pounds' pressure to push the plunger in a distance of half an inch, we have a greater index of resistance, namely, $3\frac{1}{2}$ or 4 . This shows that the muscle is more rigid than it was at the previous examination. If we had examined this abdomen with the aid of only our sense of touch, this increase of resistance might have been so slight as not to be appreciable. In an abdomen whose index of resistance at various examinations shows an increase and whose bedside record is as follows—

2	$2\frac{1}{2}$	3	4
$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

what is our inference? It can only be that the abdominal muscles are becoming gradually more rigid from the presence of intra-abdominal inflammation or tension.

In examining the abdomen we should use our judgment regarding the length of the plunger. It may be necessary in a very fleshy person to extend the plunger to a distance of an inch or and inch and a half, according to the amount of adipose tissue between the skin and the abdominal muscles.

There is but one cardinal point to be remembered in using this instrument, and that is, the plunger should be extended to the same distance in each examination of the same point on the same patient.

The instrument should be warmed before placing it against the skin.

The metallic ring of the instrument can be unscrewed, so that the instrument can be very easily carried in the pocket. This instrument was made for me by the Kny-Scheerer Company, to whom—especially to their Mr. Goldstein—I am greatly indebted for the excellent manner in which they have accurately carried out my ideas.

White River Medical Association.—A regular meeting will be held at the Junction House, White River Junction, Vt., Tuesday, November 28, at 1.30 P.M. Program: "Infantile Paralysis," by Dr. E. A. Barrows; "Contract Service."

A CASE OF PERFORATION OF AN ULCER OF THE DUODENUM, WITH REMARKS ON THE DIAGNOSIS AND TREATMENT OF THIS AFFECTION.

BY CHARLES GREENE CUMSTON, M.D.,
OF BOSTON, MASS.

PERFORATION is a frequent complication of ulcer of the duodenum, and is apt to be the first manifestation of the disease, which often remains latent. Collin found that this took place in 181 cases out of 262, in other words, a proportion of 69 per cent., although this may be looked upon as somewhat large, since many cases where these ulcers exist remain without symptoms and are only diagnosed at autopsy. However this may be, perforation of the duodenum is far from being an infrequent occurrence.

Perforation of the duodenum, as well as ulcer, is more frequent in the male than in the female, contrary to what is observed in the case of gastric ulcer, and from this very fact the diagnosis may be cleared up to a certain extent. Without going into the statistics, I may say that having consulted the records of a large number of cases I find the proportion of sexes in ulcer of the duodenum is one female to five males. This process is more frequent between the ages of thirty and forty years and consequently it is during this decade that perforation is more apt to occur, although some authorities have given the mean age about thirty-seven years. It is also evident that a duodenal ulcer may be present and perforate in much younger subjects and a certain number of instances have been reported in patients varying in age from twenty to twenty-eight years.

In the large majority of cases the ulcer is to be found in the first portion of the duodenum near the pylorus, a fact easily explained by the action of the gastric juice on the mucosa. It is precisely at this point that the perforation is nearly always found and the loss of tissue is usually discovered on the anterior aspect of the organ, because the lesion occupies the most movable portion of the duodenum, which is more completely covered by peritoneum. Alloncle found that perforation occurred on the anterior wall in 66 per cent., and Collin came to practically the same conclusion, namely, in 59.6 per cent. From this it may be concluded that when dealing with a case of perforating peritonitis suspected of having a gastro-duodenal origin, the anterior aspect of the duodenum and especially the first portion of this organ should, in the first place, be explored. The perforation, when seen, usually presents a regularly formed orifice parallel to the insertion of the omentum; its borders are usually clean cut; in the large majority of cases a single perforation was present, but there have been instances where several have existed. When this is the case they are usually symmetrical and one should always bear this fact in mind in order to avoid an incomplete interference.

Perforation naturally results in the immediate entrance of the intestinal contents into the peritoneal cavity and the resulting process will differ according to the circumstances. Nearly always an acute and rapidly generalized peritonitis occurs, which, in most instances, has been fatal, but the generalization may be absent in some. Under these circumstances the purulent collection has a tendency to become localized under the liver, in the right hypochondrium, or even in the iliac fossa on the same side. Several operative cases have been reported which were diagnosed as appendicitis, and even after the abdomen was opened the real lesion was not discovered. The amount of damage done to the peritoneum naturally varies accordingly to the time elapsing between the perforation and death, and besides those cases where any inflammatory reaction was absent on account of the very rapid death of the patient, there are others where the inflammatory process has had time to take place and has given rise to more or less disturbances. Under these circumstances all degrees of peritonitis may be met with, from simple hyperemia, especially marked on the visceral peritoneum and omentum and the unpolished and rough aspect of the serous membrane, with an accumulation of cloudy fluid containing flakes of fibrin in the declivous portion of the pelvis, up to adhesions of the intestinal coils and omentum by means of yellowish or greenish false membrane with an abundant formation of pus. Gas may be also met with, mixed with the exudate, which, however, is usually not fetid, as well as particles of food, altered blood and occasionally bile. A fact well worth noticing is that in some cases the peritoneal lesions have a decided tendency to become localized in the small pelvis. This localization is easily explained because the infectious matter thrown out from the duodenum into the peritoneal cavity is stopped in its progress by the omentum and can then only travel downward between the latter and the anterior abdominal wall and can infect the general peritoneal cavity only after having gone beyond the lower limits of the omentum. In very exceptional cases, certainly much more infrequently than in cases of perforation of gastric ulcer, acute peritonitis is momentarily delayed and sometimes even prevented, in which case one of two conditions will be found: Adhesions sufficiently resistant may have formed before perforation took place and thus gave rise to a circumscribed peritonitis so that it is only later that the inflammatory process becomes generalized after rupture of the walls of the pocket has occurred. A periduodenal focus has been known to give rise to a fistula through the abdominal wall, the opening being in the region of the umbilicus. On the other hand, one of two neighboring viscera, which is in contact with the perforation, acts like a plug and prevents the fluid from leaking into the peritoneal cavity. Usually this is the pancreas, but

the liver and gall-bladder have fulfilled the same part, and the two layers of the omentum may also accomplish this.

As perforation of ulcer of the duodenum is not of frequent occurrence, I deem it worthy to record the following case, which occurred in my practice recently: The patient, male, forty-three years of age, had always enjoyed good health, although he showed some slight evidence of alcoholism. For the last year, however, he had suffered from time to time with attacks of epigastric pain, although not very acute, occurring an hour or two after eating.

On June 16, 1903, he was suddenly taken after a hearty breakfast with a very sharp pain in the right side, which he localized under the liver. The pain increased rapidly in intensity and vomiting of a bilious nature soon took place. The physician summoned, believing the case to be one of acute gastritis, administered one-fourth grain of morphine subcutaneously and ordered the patient to be put to bed. At noon, however, there was such evidence of collapse, with a very small, weak pulse, accompanied with abdominal distention, that the case was considered to be more serious, and I was asked to see the patient.

Upon examination, the abdomen was found distended and by percussion it was everywhere tympanic. The pulse was 140, temperature normal, respirations 24. The patient was continually vomiting an extremely acid bile-tinted fluid. There was no particularly tender spot in the abdomen and on account of the considerable distention, practically no information could be derived from palpitation, but from the past history of attacks of pain in the epigastric region, as well as the sudden onset of the present condition, a diagnosis of perforated gastric ulcer was made and operation advised as soon as the first phenomena of shock had disappeared. After two subcutaneous saline infusions the patient's condition improved, the pulse becoming stronger, so that at four o'clock in the afternoon the abdomen was opened in the median line from the sternum to the umbilicus.

Upon exposing the stomach a seropurulent fluid containing particles of escaped ingesta, and upon closer inspection it appeared to be oozing from the pyloric region. A second incision was carried to the right perpendicularly to the first, in order better to expose the pylorus. Both inspection and palpation of the anterior and posterior aspect of the organ were negative, no perforation being found; but the upper part of the duodenum appeared collapsed and just below a large quantity of dark fluid, having an intensely acid reaction, escaped. The diagnosis of a perforated ulcer of the duodenum was made and it was believed to have taken place on the posterior aspect of the organ, because all the portion of the duodenum that could be inspected showed no evidence of perforation. As the patient's condition was very poor, the stomach, transverse colon and

omentum were pulled together with sutures in order to prevent if possible a leaking of the fluid into the general peritoneum, and two large drainage tubes were inserted and the wound packed with iodoform gauze.

For the next forty-eight hours the patient remained in a very serious condition, and at the end of this time it was evident that the general peritoneal cavity had become infected and that a general peritonitis was present. Consequently, an incision was made in the median line just above the pubis, the abdomen thoroughly washed out with salt solution and drained by two large tubes.

After this second interference the patient's general condition began to improve steadily and after a very slow convalescence, covering about eight weeks, he finally recovered. In June, 1905, just two years after the operation, we had news of the patient, who reported himself as being in perfect health.

In going over the reported cases of perforation of ulcer of the duodenum, it at once becomes evident that this condition presents no symptomatology belonging properly to it, and all that can be said is that it gives rise to the same symptoms as those met with in intestinal perforation, or that of the stomach. In order to make the description of the symptomatology as clear as possible, we may divide the clinical symptoms to which perforation of the duodenum gives rise under three heads, namely, the symptoms present before perforation has taken place, secondly, the symptoms of perforation, and thirdly, those belonging to the resulting peritonitis.

In many instances symptoms presented before perforation are absolutely wanting and the accident occurs in the midst of a flourishing health. This sudden commencement without any previous symptoms is met with in probably about 66 per cent. of the cases. In those patients who give evidence of gastric disturbance before anything happens, one may meet with digestive symptoms having no precise characteristic, such as flatulency, a feeling of fulness after eating, and constipation. In others, however, there may be more definite symptoms, such as pain in the epigastrium, attacks of gastric pain with vomiting, hematemesis, or melena, which often leads to the diagnosis of gastric ulcer, but I am aware of no case where the diagnosis of duodenal ulcer has been made before perforation has taken place.

When perforation occurs the most noteworthy point is the suddenness of the commencement and the rapidity of the accidents. After a slight effort, or even without any appreciable cause, the patient is taken suddenly with an acute and very severe abdominal pain, which usually results in collapse; the face becomes pinched, the eyes are sunken, the extremities become cold and covered with sweat, the respiration is rapid and superficial, while the pulse runs high and is very weak

and depressible. The commencement is sudden and dramatic, while the pain, as I have said, is extremely severe, causing the patient to cry out, and has been of sufficient intensity even to result in fatal syncope.

There are instances where the pain has been described as if some organ had been torn, immediately followed by a sensation as of liquid flowing into the abdominal cavity; and this pain, which in the first place is distinctly localized in the right hypochondriac region, less frequently in the epigastrium or in the left hypochondrium, is not long in extending throughout the entire peritoneal cavity. In some cases pain has been complained of in the right shoulder. Collapse is also a fairly constant symptom of perforation and rarely is wanting; the temperature is subnormal, quite in contrast with the rapid pulse and respiration, while a cold sweat and a marked state of stupor indicate the serious condition of the patient. Vomiting may also be met with at this stage, but is more apt to occur a little later, at the time when peritonitis develops. In other cases the perforation has been accompanied by a chill followed by a rise in temperature, although the latter is of short duration.

Besides the above symptoms, physical signs obtained by a methodical examination of the patient may sometimes reveal the presence of fluid in the peritoneal cavity. This is made evident by a more or less marked distention, which is accompanied by the disappearance of liver dullness and pushing up of the diaphragm. The upper part of the abdomen may first show tympanism, while dullness will be found in the declivous portion. Palpation is extremely painful at the commencement, but in certain cases a variable amount of fluctuation has been elicited. Auscultation may possibly allow one to hear the air which has escaped into the peritoneal cavity, although this sign is more or less problematical.

The peritonitis following is characterized by an aggravation of all the above-named symptoms with the exception of pain, which may subside or even disappear. Usually the collapse remains marked and hides the inflammatory reaction arising in the peritoneum, and for this reason the initial chill and elevation of the temperature are generally moderate, contrary to what is observed in acute septic peritonitis. They may even be wanting completely and the temperature subnormal. Instead of increasing, the pain becomes less intense a few hours after perforation has taken place, and in some instances it has throughout been so slight that abdominal palpation hardly gave rise to any discomfort whatsoever.

The predominating symptoms at this stage of the process may be summed up as vomiting combined with constipation, rarely with diarrhea, tympanism and dyspnea. Vomiting may occasionally arise at the very commencement of the process, but it is more prone to occur when peri-

tonitis sets in. The liquid is in the first place of a mucous nature, but becomes rapidly bilious and in several reported cases fecaloid matter has been thrown up, similar to that observed in intestinal obstruction. Hiccough may be extremely obstinate. Constipation is the rule, and if to this we add dysuria or anuria, as sometimes happens, everything seems to conspire to lead to a diagnosis of intestinal occlusion. The tympanism and dyspnea increase in intensity, while the vomiting and hiccough become less severe. The collapsus increases until the fatal outcome, the pulse becoming weaker and weaker, while the features show all those characteristic evidences of approaching death. The evolution of the symptoms is usually extremely rapid and, although the patients may survive from two to four days, they rarely hold out more than forty-eight hours. Some, however, have lived as long as a week, but here the transformation of peritonitis to the chronic type is very exceptional.

From what has been said it at once becomes evident that the prognosis in these cases is extremely serious and this is due partly to the shock resulting from perforation, as well as to the consequent peritonitis, which has little or no tendency to become limited. Then, again, there is the danger of auto-infection from the septic liquid contained in the peritoneal cavity, and death will soon occur unless an early surgical interference prevents the process from continuing. There have been a few cases reported where the symptoms have been almost insidious, and this has been due to the fact that adhesions have had sufficient time to become organized, the result being an encysted peritonitis. The commencement is less dramatic and the pain far less marked, while the phenomena of shock may be wanting, so that in a few days the patient is perhaps able to resume his occupation. But this is a remission of not long duration, and after a certain time the patient dies, either from the opening of an abscess into some neighboring viscus, a generalization of the peritonitis, or the progressive evolution of the cachexia, the cause of which remains unrecognized; and here it is only at autopsy that evidences of a more or less old perforation of the duodenum are discovered.

The diagnosis of perforation of a duodenal ulcer is far from being an easy matter and the principal aim of the surgeon should be to differentiate the perforation and the resulting peritonitis from those affections which they may simulate, and to locate the probable seat of the perforation. The diagnosis of peritonitis from perforation is based upon two principal signs, namely, the sudden sensation of tearing within the abdomen, immediately followed by intense pain and collapsus, and the disappearance of hepatic dullness, which is replaced by tympanism. When these two symptoms are not distinctly marked the diagnosis remains faltering. When perforation takes place the syncope and rapid

death which have been observed in some cases have led one to believe that there was an internal hemorrhage or poisoning, whereas when peritonitis develops, the differential diagnosis rests especially with intestinal occlusion.

One observes in internal hemorrhage, as in perforation, a rapidly developing collapsus, with cold extremities and a weak pulse, but the expression of the face is not pinched and the integuments and mucous membranes become rapidly blanched. There is one little point which I may mention in making a differential diagnosis between perforation of a gastric or duodenal ulcer and internal hemorrhage, when the radial pulse is wanting; examine the femoral artery and pulsation will be discovered which is usually more marked than in a normal condition, this being probably due to the stimulation caused by the peritonitis. Consequently the absence of pulsation at the wrist, but with a marked pulsation of the femoral artery, with allow one immediately to eliminate an internal hemorrhage. Of course, in some cases perforation of the ulcer will give rise to an internal hemorrhage, but, under these circumstances, hematemesis or very abundant melena will usually be met with.

On several occasions, on account of the very rapid evolution of the accidents, poisoning has been supposed to have occurred, when in reality the case was one of perforation of a duodenal ulcer, but it is well never to mention the word poisoning before the family unless one is absolutely sure of one's diagnosis, because if once the word has escaped the lips it will resound in the ears of the patient's relatives, who will afterward think of nothing else.

It is not infrequent in cases of peritonitis resulting from perforation to meet with phenomena of pseudo-strangulation, numerous examples of which have been published by Duplay. In the commencement the symptoms are quite the same; there is absence of fecal matter, the pain ceases after a few hours, while there is vomiting and subnormal temperature, but the evolution of the process is entirely different. In occlusion the pain is less intense and not so sudden, with paroxysms resulting from the peristaltic movements of the intestine, the loops of which may be seen distended under the abdominal integuments, whereas in peritonitis the pain is sudden, sharper and more superficial, and becomes rapidly generalized throughout the abdomen. In intestinal obstruction the vomiting is in the first place mucous or bilious and finally becomes fecal, but distinctly porraceous vomiting, so characteristic of a perforation, is never observed. The tympanism accompanying peritonitis is everywhere equal throughout the abdomen and by auscultation the bubbles of air may be heard passing from the duodenum into the peritoneum, but in strangulation usually only a portion of the intestinal canal is distended, which results in a limited distention of part of the abdomen, while in

some cases percussion elicits dulness below the umbilicus, a fact which would be in favor of peritonitis. A subnormal temperature occurs late in occlusion, whereas in cases of perforation it is early in the process, accompanied by a weak and miserable pulse. Constipation is absolute in intestinal occlusion, but in peritonitis it may not be so marked and can even give place to diarrhea; and finally, in intestinal obstruction the general symptoms are slower in making their appearance than in peritonitis, this being due to the fact that there is a very rapid intoxication of the organism by the septic liquid contained in the peritoneal cavity in cases of perforation, which is rapidly absorbed. All these differential symptoms are far from being always distinct, and much must rest in the good clinical sense of the surgeon to seize the various diagnostic shades in order to come to a correct diagnosis, a matter which under the most favorable circumstances is a delicate one.

It is hardly necessary to refer to the possible mistake which could be committed in cases of diabetic coma, which might possibly bring to mind the question of perforation on account of the symptoms presented, such as sudden and very severe pain, pinched expression and dyspnea, the last in this case more marked and accompanied with a small pulse and collapse. Hesitation is quite permissible where an examination of the urine has been neglected and the patient's breath does not emit any odor of acetone.

Generally speaking, the diagnosis of peritonitis presents insurmountable difficulties and these are rendered all the greater when one endeavors to recognize the true seat of the perforation when the latter has been diagnosed. The topographical diagnosis has never been made, as far as we are aware, in any case of perforated ulcer of the duodenum, but the importance of this cannot be denied by any one. Inasmuch as the operation can be carried out with greater rapidity and the prognosis depends almost entirely upon this, the operative success being entirely related to the promptitude of the operative act, it becomes evident that every endeavor should be made to come to a correct conclusion, because it not infrequently happens that after the abdomen has been opened, the perforation has remained unseen and consequently the interference has been incomplete. In the first place one may set aside those cases in which perforation has resulted from some casual affection, such as typhoid fever, tuberculosis or dysentery, which ordinarily do not remain ignored and the knowledge of which results in the diagnosis of the probable location of the perforation. Then again it is very evident that if a peritonitis occurs in a subject who has had attacks of appendicitis or gastric colic which have been well defined, all presumptions are in favor of a perforation of the appendix or the stomach, in-

versely, circumstances may render legitimate certain presumptions relative to the existence of a duodenal ulcer and a careful examination of recorded cases shows that the symptoms usually appear in the midst of an excellent health and nearly always in an adult man shortly after eating or drinking. The pain is usually seated under the liver on the right side of the median line; vomiting rarely is missing and may appear at variable intervals after the occurrence of the first symptoms. If to these symptoms one may add attacks of pain occurring at intervals in the intestine two or three hours after eating, seated at the spot already mentioned and accompanied with hematemesis, or what is more usual, with melena, the presence of a perforated duodenal ulcer may be assumed with certitude. It is, however, rare that the above signs are so precise and the difficulty commences when the accidents suddenly appear, as is usually the case, in a patient whose gastric or intestinal antecedents show nothing.

The question at once arises whether one is dealing with a perforating appendicitis, or a latent gastric ulcer, or one of the duodenum, and the solving of the question is occasionally practically impossible. The seat of the initial pain should always be taken into serious consideration and in these cases the best sign leading to a diagnosis is without any doubt the seat of the greatest pain, either spontaneous or produced by palpation. In perforation of the appendix the most painful spot will usually be found rather to the right of the umbilicus and in the vicinity of McBurney's point, but very frequently the pain is diffused, the patient complaining of the left iliac fossa, the epigastrium or the right hypochondrium. Under these circumstances rectal examination is of great utility in order precisely to locate the site of the pain or to recognize the presence of a mass in the region of the cecum. When the lesion is seated in the stomach the pain is in the first place quite distinctly limited to the epigastrium and shoots toward the left hypochondrium or between the scapulæ. When the duodenum is the seat of the perforation the pain is at first more apt to be felt in the right hypochondrium or just below the costal borders and this explains the mistake ordinarily committed in believing the case to be one of appendicitis, all the more so because the most evident focus of peritonitis has been met with in the ileocecal region in these cases. I would, however, point out that usually the commencement and the symptoms of peritonitis from perforation of a duodenal ulcer are much more sudden and far more dramatic than those met with in the early period of perforated appendicitis. In the latter affection the suddenness and intensity are never as great as in cases of peritonitis resulting from perforation of the duodenum and the latter can only be compared with a perforation of gastric ulcer.

In order to come to an exact diagnosis it is well to recall that ulcer of the duodenum is far more frequent in the male, contrarily to what is observed in gastric ulcer; that the former is usually very latent, whereas the latter will already have given evidence of its presence, and it would also appear that vomiting is a more constant symptom in perforation of duodenal ulcer than in the same lesion of the stomach. I would point out one diagnostic means in our possession which may be utilized as the last resort, namely, that if the symptoms are not sufficiently typical to lead one to suppose that the appendix is at the seat of the trouble the surgeon should examine the region of the duodenum, at which point the lesion will most usually be found. Then, again, the absence of any fecal odor will lead one to think of a perforation of either the stomach or the duodenum, whereas a very acid abdominal collection will lead to the same conclusion. A small incision made just below the umbilicus will enlighten one as to the nature of the fluid contained in the peritoneal cavity.

From what has been said it becomes evident that in spite of a very close examination there are many instances where the site of a perforation cannot be diagnosed before the abdomen is opened and in such uncertainty it is only right, as soon as the peritoneal cavity is exposed, first to assure oneself of the integrity of the cecum and the appendix, after which the stomach and duodenum should be examined, when the perforation will be discovered.

Naturally, there is but one treatment for perforation of duodenal ulcer, and that is laparotomy. It is only proper to divulge the many instances of rapid death in order to show the general practitioner and the patient's family how every minute is precious and with what rapidity the slightest hesitation increases and multiplies the danger. Here, as in every other case of perforation, statistics show that those cases which are operated on within the first twelve hours following the initial symptoms are those which have been crowned with success, although in one successful case the operation was not undertaken until forty-eight hours had elapsed. In a few cases the perforation was found at operation, but its closure by sutures has rarely been accomplished, and in most instances drainage alone has been resorted to and recovery has resulted. It is quite true that the number of interferences for this condition are as yet too few in number to furnish any exact conclusion, and it must also be recalled that an exact diagnosis before the abdomen has been opened has rarely, if ever, been made. However, taking all reported cases together, it would seem that the great number of unsuccessful outcomes is due, above all, to two circumstances, namely, a too tardy interference and an erroneous diagnosis. It is quite evident that a diagnosis of perforation of the duodenum is always an extremely difficult matter, but, when

one is aware that this accident can occur, it will be more likely to be discovered and it is to be hoped that in the future the results of operative interference will be less unfavorable, because this pathologic process is becoming better known among surgeons.

It is always well to let the initial shock pass by and allow the patient to regain some strength before opening the abdomen, and I believe that from three to four hours is usually sufficient for this to take place. In order to expose the perforated duodenum the best incision would naturally be one made parallel to the linea alba about five centimeters or a little more to the right, commencing at the eighth costal cartilage and made as long as requisite for the case. But, since the diagnosis is rarely sufficiently evident so that one can be certain of a lesion of the duodenum, an incision in the median line will ordinarily be resorted to.

When the perforation is easily accessible one has at his disposal, as in gastric ulcer, three technics, namely, suture of the perforation with or without resection of the ulcer, intestinal anastomosis with or without resection, and thirdly, enterostomy, or fixation of the borders of the ulcer to the abdominal wound. The first procedure should be employed when possible, while the other two are to be reserved for those cases where the changes in the tissues are so extensive that it is not possible to suture, enterostomy being resorted to in those cases where the patient's condition obliges one to act with speed. If the perforation is difficult to reach so that no sutures can be used, all that can be done is to wall off the parts and resort to large drainage tubes and gauze packing. If the general peritoneal cavity has become involved, it should be opened in the median line above the pubis and drained at this point. I would recall to mind that occasionally several perforations may be met with, and for this reason if one has been able to suture one perforation it is always well to look for others in order to avoid any mishap from overlooking other openings.

The postoperative care requires much thought and consists in keeping up the strength of the patient and favoring the elimination of the toxic substances.

Treatment of Xanthoma-Like Degenerations.—

CHARLES WARRENNE ALLEN describes a treatment (*Med. Rec.*, September 23, 1905) of xanthoma-like degenerations of the lip by the high frequency spark. This condition, due to degeneration of the protoplasm of the epithelial cells into a substance closely allied to keratohyalin, is quite common. Former methods of treatment have not proved satisfactory. The treatment advised makes use of a static machine and a hyperstatic transformer, a large carbon electrode, a spark gap of two inches, and a contact spark of about an eighth of an inch, or one which will cause almost at once a marked whitening of the surrounding pink of the lip. Two or three sittings usually suffice and the pain is trifling.

CARE OF THE AGED AND THE INFIRM IN THE TROPICS.

BY MANUEL GOMEZ Y MARTINEZ, M.D.,

OF MANILA, P. I.;

SECRETARY OF THE BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

THE theme which I will attempt to unfold in the brief time at my disposal, if you will concede me your indulgence, is the care of the aged and infirm. It should be taken into consideration that the information is taken from the very little to be found here and there in the treatises at my command on subjects having some relation to the material included in the title of this article. This, added to my own limited knowledge, acquired in the practice of the profession, composes the very meager paper which you will now hear. If I am able to hold your attention it will give me much satisfaction.

Before entering upon the principal point of dissertation, permit me to say a few words in regard to the manner in which the aged were treated in these islands before the arrival of the Spanish, and until shortly before the termination of their sovereignty here. Following that, I will cite the principal phenomena which ordinarily occur in old age, specifically naming those characteristics most common in old age among the Filipinos, and I will close with the hygiene or proper care of men in senility, considering them individually, giving in conclusion some indications as to the proper manner of carrying this out.

Here, as in all countries having primitive customs, an old person was an object of great consideration and respect to his fellows, and exercised much influence and authority over his fellow citizens. Apropos of this, let us hear what the distinguished student of Filipinology, Dr. Pardo de Tavera, says in his folio entitled "The Customs of the Tagalogs in the Philippines, according to P. Plasencia." Treating of the *Datos* and *Barangayes*, he says: "These people always had chiefs whom they called *Datos* who governed, and were captains in their wars. These men were obeyed and revered, and the subject who committed any crime against him or said any word to his wife or child was gravely punished," etc., and explaining the word "*Datto*" he says, "*Dato* to-day is not used in Tagalog. In Malay, *Datu* or *Datuk* signified primitively grandfather, head of a family, which was in fact what constituted a *Barangay*. In Mindanao and Jolo this name is preserved and used to designate certain chiefs."

In a note to the treatise of the same author on land holdings, he says: "All the towns of the Malay race were governed, and some are even today, by an *Addat*, which, literally translated, signifies a custom or usage. The laws which were not written were transmitted by tradition from father to son. The most aged, as being men of the most experience, whose age had permitted them to observe their own customs for the longest time, were those who ordinarily decided litigation." When they rendered their decisions

they did not say, "The law orders it so," but "Such is the custom," which in Tagalog is "*Ang ugali*." So much for the author above named. In our days there has been preserved, until within a short time, a councillor's post in the *barrios* of the towns, held by the "*Matandá say nayon*," which in Spanish would be called "*El viejo del Lugar*" (the oldest man of the *barrio*). He was the representative of authority in the distant places, and through his mediation the orders of the Government and its regulations were complied with, and many times he adjusted the dissensions and disputes of his fellow citizens when they were of small moment, so that it was a rare thing that they were not given a hearing.

Having made this short historical résumé, let us now pass to consider whether old age constitutes a pathologic condition or is simply a phase of existence.

Cicero said that old age is a disease, and various later medical writers accepted this phrase, employing it as an argument in the treatises which they have written concerning the diseases of advanced age, and Charcot himself, treating of the modifications that the structure of the organs suffer in the aged, says that they are of such nature that they may with the greatest ease be confounded with other lesions, which should be considered as absolutely pathologic. We will not dally with lucubrations and scientific disquisitions to prove the intimate nature of old age, still less to explain the intricate labyrinth of its obscure causes, as hidden and unknown as is the essence of life itself, or is the unfolding of the organs in infancy and adolescence, since they escape, impalpable, the most conscientious and scrupulous investigations. Sufficient is it to us to know that old age comes on in that period of existence in which the energies of the organs that compose the body are sapped by wear and tear, and the re-integration of the tissues takes place slowly and with difficulty. In advanced age the inorganic matter is augmented, and the amorphous or dead matter predominates over the living and protoplasmic. It is not our intention to study the transformation that the tissues suffer, nor the influence that this transformation exercises in the functions of the organs. We will only indicate, for the purpose of giving a general idea and for the purpose of following up to a certain point the processes, of which *Cajal* has happily remarked that they are the preparation which facilitates during life the work of death.

The pathologic beginnings of senility originate at that moment in which the functions of the aged, through change in the texture of the tissues, have changed so much from the normal that there is a lack of equilibrium among the various functions, originating a condition prejudicial to the general health and one which we may call a pathologic period. But if we consider the old man in that epoch in which such notable changes have not yet taken place in his tissues, nor therefore in his functions, but at the time when the

functional activity has simply diminished, we shall not be able to consider old age as a pathological condition. We must look upon it as one which differs from the action of the organs of a man in the prime of life, and on that account is not to be considered non-physiological, but belonging properly to the latter days of the life, which Canstatt has described under the name of senile involution. Following this period, according to Boy-Tessier, the following changes occur: (1) Atrophy of the tissue elements. (2) Progressive infiltration of the various tissues with organic elements, or inorganic material, foreign to their original constitution. (3) Excessive production of connective tissue.

It is a proved fact and one in which all hygienists concur, that old age, as a general rule, comes on more quickly in hot climates than in cold or temperate, in the same manner as puberty is earlier in the former and retarded in the latter. This law (let us call it such) is complied with in this country. Old age commences, as a general rule, among the Filipinos at a period of from forty-five to fifty years. To this statement, perhaps, there may be some objection, say that the observer has noticed faces which indicate that certain persons seem to be younger than they really are. If old age had no other manifestation than the appearance of the physiognomy, certainly among the Filipinos old age should arrive very late, but unfortunately this is not so. Other more important signs indicate this period in which life declines, and in proportion to its advance all the functions demonstrate commensurately that the cycle of existence is about to terminate. We have observed here that the first manifestation of old age, as a general rule, begins with the weakening of the memory. This fact, we believe, may be explained, if it is taken into account, that the genital functions are more active in hot climates and the loss which this produces in the bodily economy is reflected first in the cerebral functions, affecting primarily the memory; whence it is, that there may be observed with frequency in this country those cases of dullness which in the Tagalog idiom are "Nahihibing," lack of memory. But this fact should not be interpreted as peculiar to the Filipino race, or linked to reasons purely ethnical by the means. We believe that none who find themselves under the influence of the tropical climate are free from its effects. It may be, perhaps, that the resistance of a stronger, more vigorous race would retard somewhat the advent of this sign of the decay of the cerebral organ, but nevertheless the fact exists, and observation of many of the white race have confirmed me in this belief.

Other signs that characterize old age generally occur between the fiftieth and sixtieth years. These are the whitening and falling of the hair, the loss of the teeth, the wrinkling of the skin, the shortening of the stature, the lessening of the weight of the body, and the decay of the special senses. The intelligence is debilitated, mem-

ory is lost, and sensibility is deadened. The affected faculties disappear progressively until the condition reaches, at times, senile dementia. With senile involution it happens, as is natural, that the more advanced this period is, the more predisposed the aged are to sudden death from determined causes. This explains how rarely death occurs from advanced age only, and how, therefore, old age is variable, since it is terminated by death. In this class of diseases we may include cerebral congestions and hemorrhages, rupture of the heart and aneurismal tumors, pulmonary apoplexy, angina pectoris, etc. Other morbid processes of slow course are likewise frequent in senility, such as paralysis, gastro-intestinal catarrhs, enterocolitis, asthma, bronchitis, pulmonary emphysema, carcinomatous degeneration of the stomach and liver, anemia and senile debility. These are, rapidly sketched, the most ordinary diseases we have observed here.

After what I have said concerning the tendency to disease in the aged, let us pass to the indication of the hygienic methods most necessary for this period of life.

Fresh air is as necessary for the aged as it is for infants, although, for distinct reasons, we are under no great necessity for insisting upon this point here, since the exigencies of the climate and the construction of the houses do not, in general, expose the aged to the respiration of confined air; as is the case in some other countries. Nevertheless it is necessary to make the point and to force it upon the public, especially the masses, that the aged should not sleep with the face and head covered, a thing which we have often observed when the temperature falls somewhat. By this habit they expose themselves to severe ailments, besides obtaining an unrefreshing sleep, and on awakening are weak and depressed for some minutes, as they themselves observe, owing to the lack of oxygenation of the blood during the period of sleep. It is well known that the aged feel the cold much more on account of the loss of the subcutaneous adipose tissue, the lack of which favors the cooling of the periphery of the body. To remedy this, clothing of greater weight should be worn.

Alimentation.—There is no doubt that alimentation is an important point and one with which all hygienists are occupied with justifiable care, since it is the origin of many diseases among the aged, indigestion being the most frequent on account of their liking for the pleasures of the table and the custom of eating too much, so common in modern lands, according to Boy-Tessier.

In discussing this part of our subject, we should call attention to one point in close relation with the digestive functions of the aged. The loss of the teeth, as has been said, is one of the signs that characterizes old age of the individual in this country by an especial predisposition which it is perhaps not necessary to go deeper into here.

Dental caries begins beforehand the destruction of the teeth, anticipating the epoch of their loss. On this account the lack of all or of a great part of the teeth is very common on reaching a certain time near old age. In such cases we warmly counsel, as a sure method of evading gastro-intestinal affections such as gastro-enteritis and enterocolitis so frequent here among the aged, the use of false teeth, as indispensable for mastication, a *sine qua non*, that the digestion may easily and completely be carried out. On the other hand, and without the aid of this artifice so highly perfected, the food passes to the stomach in pieces practically entire or scarcely changed, a form unsuitable for the efficacious action of the gastric or intestinal juices.

Taking into consideration the quality of the food ordinarily consumed in this country by the great mass of the people, and the simple preparation given it, and especially the natural abstinence of the Filipinos, it would be useless to discuss in an extended manner methods of preventing the excesses at table as frequent as they are dangerous for the aged in other countries. On account of other customs observed here, however, it is necessary, on the other hand, to call attention to and explain the fact that the aged, not in any wise being sick, should not observe a diet practically of abstinence, as we are accustomed to observe, under the pretext of debility of the organism. On the contrary, the aged are able to and should partake of everything; meat, fish, eggs, green vegetables, etc., which are necessary to man in his prime. I do not wish to say by this that he should eat as much as the other—by no means. The man of advanced age, without doubt must submit to a different regimen. We should recommend, as a proper method for the alimentation of the senile, that they should abstain from eating abundantly. It is much better to divide up the meals, taking a little each time, but eating with greater frequency. We will not attempt here to point out the food necessary for each man, for the reason that the necessary studies have not been made in this country of the diverse alimentary substances, to determine their proportions in average alimentation, their coefficient of digestibility or the heat produced by a gram of matter. The aged who are not very active should take only such nourishment as is necessary for purposes of repair. To attempt to invigorate an old man, whose forces are already much debilitated, by means of a very nutritious food is not only useless but prejudicial in a high degree. In general, the nourishment of an individual should be in direct relation to his degree of senility, the more advanced his age, and the greater the degree of physical decay encountered, the less the quantity of nourishment. Such foods as are taken should be prepared simply and composed of substances known to be easily and quickly digested.

The use of wines, liquors and spirituous drinks should be prohibited, as well as all stimulants

which tend to excite the various functions. Without doubt, if one has been accustomed to drink, it should not be prohibited absolutely and abruptly, but one should proceed with prudence and circumspection, with the end of not producing a radical change in the bodily economy.

Exercise in the open air is very beneficial to the aged, much more so if in adult life they have been accustomed to it or to labors which required the development of much muscular energy. Gardening is a good form, for it not only serves as a distraction, but it must necessarily be carried on in the open air, and at the same time requires light exercise which produces cutaneous transpiration, and accelerates as well the pulmonary respiration, all indispensable functions for the necessary elimination of toxins. It is very clear that these exercises should be moderate and not continuous, according to the energies which are still conserved.

Short baths at the natural temperature of the water are also very beneficial. Also, from time to time, the employment of hot water for the cleaning of the body is very necessary, for the epidermis, which gradually thickens and becomes somewhat hard in the aged, requires softening and maceration for its removal, without which the perfect action of the skin cannot be maintained.

Intellectual labors, which are prolonged and require that the attention be fixed for a long time should be abstained from.

Finally, after sixty years of age, sexual unions are dangerous in general, since this is a well-known cause of grave accidents, and even sudden deaths; wherefore, all kinds of excitement which might tend to provoke them should be avoided.

The mode of bettering the situation of the needy old, who are extremely poor, is to gather them in a house of refuge in an adequate location outside of, but not far from the city. San Juan del Monte has, in our opinion, the best of conditions for this object. But as, according to trustworthy advices, the owners of those lands ask excessive prices, and the purchase of this site is inadmissible, a site for a house of refuge should be obtained in the heights of Santa Mesa. This house should be surrounded by extensive grounds, where the inmates may carry on the cultivation of the land in a small way as a manner of distraction. There should be two pavilions, each one capable of accommodating 150 people, one for women and the other for men, with their necessary outhouses. We shall not burden this paper with the descriptions of them.

The manner of life to be carried on within this establishment should be the object of special regulation, distributing the hours so as to include from two to four for certain bodily exercises, proportionate to the energies and aptitudes of each individual, including reading in the known dialects and certain diversions at fixed hours. The admissions should be made with scrupulous

attention, none being admitted except those actually needy, or who are a burdensome charge upon their relatives, their circumstances being ascertained by a bureau of information, and no attention being paid to any influence that may intervene in their behalf.

Money aid, distributed to them at their homes, as has been carried out in other countries, for the bettering of the condition of these needy ones, has not given good results, since in nearly all cases the persons who surround them obtain the benefit of this pension, thus defeating the end desired and fomenting, perhaps, laziness and vices in those parasites who wish to live at the expense of the "dead wood." The administration of this asylum should be given to a board composed of persons of good repute, selected by competent authority, the Commissioner of Public Health being *ex officio* president, under the authority of the Secretary of the Interior.

After all that has gone before, and not forgetting the high consideration and respect which our ancestors professed toward the aged, we are confident that the collective forces of unselfish men, with the co-operation of the Government that is giving us such unequivocal demonstration of its good intentions, in the very high and difficult mission which it is carrying out in these isolated regions, will quickly raise a welcome roof to those who, conquered and overcome in the struggle for life, and who are surrounded with misery and privations as the only trophies of their long journey. If we will do this, coming generations will say of us, "Those who preceded us were not selfish. They cared for their unfortunate fellows."

THE SUBSTITUTION OF DRUGS IN THE DISPENSING OF THE PHYSICIAN'S PRESCRIPTION.¹

BY WILLIAM J. CRUIKSHANK, M.D.,
OF BROOKLYN, N. Y.

THE substitution of drugs in the dispensing of the physician's prescription is an atrocious crime. Like the work of the assassin, it is a stab in the dark. Under some circumstances it may resolve itself into a criminal act, the legal proof of which may become very difficult. The physical properties and general appearance of a given mixture or other preparation may give no clue whatever as to the chemical character of its component parts. It is true that in doubtful cases resort may be had to chemical analysis, but even that expedient may fail of legal proof. Even if absolutely reliable in every instance, the most ordinary and simple chemical analysis is usually a more or less expensive proceeding, far beyond the means of the average citizen, and is practically impossible unless it be in specific instances where such analysis becomes imperative for medicolegal purposes.

¹ Some remarks on the general subject, together with an examination of a legal opinion handed down by the Hon. William J. Gaynor, one of the Justices of the Supreme Court of the State of New York, in the case of *Laturen vs. The Bolton Drug Company*.

It will therefore be seen from the foregoing that for safety, accuracy, and skill, in the preparation of the physician's order for his patient, the pharmaceutical integrity of the druggist must be relied upon absolutely. He should therefore be held to the strictest accountability for his conduct toward the public. In the majority of instances the integrity of the pharmacist is all that could be desired, but every physician of experience knows that there are exceptions to this rule—that there are many pharmacists who are in the habit of substituting drugs in the preparation of physicians' prescriptions whenever it may be convenient to themselves to resort to this contemptible practice. The person who is guilty of such an act may be said to descend to the lowest level of mankind. We can understand and overlook, to some extent at least, the crimes of passion. "We take into consideration the fact that man is liable to be caught by the whirlwind, and that from a brain on fire the soul rushes to a crime." But what excuse can ingenuity offer for this deliberate and cowardly crime of drug substitution? The pharmacist, by reason of necessity, occupies a close position of trust toward the helpless poor, the sick, the physically weak, the dying—in fact, to the whole community. The act of substituting drugs in the dispensing of the physician's prescription prostitutes that function and places in jeopardy the health and sometimes the lives of our citizens, and this, too, for a mere trifle in the form of fraudulent monetary consideration or, as is frequently the case, the crime is committed in a spirit of reckless and total disregard for moral obligation.

Against this crime of drug substitution the victim has no redress unless it be through an appeal for the protection of the strong arm of the law. But the mere placing of protective laws upon our statute books will not suffice, if our courts shall fail to recognize the great necessity of constantly and jealously guarding the physician's prescription against the smallest possible intrusion by the druggist.

Laxity in construing the laws on this subject, by our judges, or any judicial disregard for the equitable rights of the citizen in this respect, and the crime of drug substitution becomes rampant. The spirit of commercialism, with its avarice and individual greed, seems to have so thoroughly infected our so-called modern civilization that even the atmosphere of the sick-room has, in one way or another, become contaminated with it.

We have, unfortunately, long since arrived at a point where the physician's prescription is not exempt. This condition of affairs has been allowed to go too far. It is intolerable. It has become a serious menace to the community. It should be stopped. The medical profession should insist upon the application to this existing condition of the proper remedial agent. If laws have not been enacted which will serve the purpose of protecting the public against this crying evil, the legislature should be appealed to with-

out further delay. If there are laws already on our statute books which sufficiently cover this question, it is the duty of the medical profession through its organized societies to see to it that these laws are properly enforced. The lethargy of our profession in the face of this crime of drug substitution is amazing. If there was any dispute concerning the frequency with which the crime is committed there might be less reason for wonderment at this remarkable conservatism, but every experienced physician and every honest druggist freely admits its great prevalence. I have myself heard pharmacists express the opinion that certain acts of drug substitution were justifiable. Such men have secretly committed the crime so often that they have come to regard it as a trifling matter. They represent a certain type with which physicians are quite familiar. Such men are often loud in their ignorant criticism of the physician's prescription. They are living examples of the truth contained in the ancient adage that fools will venture in where angels fear to tread. From this ignorant spirit of criticism to the dishonest practice of substituting something "just as good" is but a short step.

The reasonableness of this statement may be found in the expressions of triumphant delight together with the evidences of irrational and incoherent thought with which some of the pharmaceutical publications greeted the opinion recently emanating from the Supreme Court of this State in the case of "Laturen vs. The Bolton Drug Company," in which opinion it was held by Mr. Justice Gaynor that to tamper with the physician's prescription is not legally negligent. The fact that the manager of the defendant drug company swore that he had himself dispensed for the plaintiff a four-ounce mixture containing two grains of the acetate of morphine, whereas the physician's prescription called for no morphine at all, was not considered by the learned trial justice sufficient evidence of negligence on the part of the defendant to send the case to a jury, and he therefore dismissed the complaint. But, notwithstanding the opinion of the learned justice in the case referred to, it would seem that the law on the general subject is elementary, clear and well settled to the contrary. The courts of last resort in many of our States have rendered opinions upon this subject which seem to be at variance with that of Mr. Justice Gaynor. The basic propositions of law as set forth by our authorities on medical jurisprudence, are certainly in direct conflict with the learned judicial opinion as handed down in the case at bar.

The following language, abstracted from Sec. 401 of the Penal Code, is very explicit:

"An apothecary, or druggist, or a person employed as clerk or salesman, who in making up any prescription, substitutes a different article for any article prescribed, or puts up a greater or less quantity than that prescribed, is guilty of a misdemeanor."

In an opinion which recently emanated from the Court of Appeals of this State, the learned writer, in referring to a toxicological question, quoted as authority the work on medical jurisprudence of *Peterson and Haines*. It occurred to me, when reading this opinion, that it would be interesting, in connection with the question of drug substitution, to note what these controlling medicolegal authorities say with reference to the legal and moral responsibilities of the pharmacist to the public, in order that I might be enabled thereby to examine in detail Mr. Justice Gaynor's decision with a better understanding of the questions involved. Before proceeding to this detailed examination, I desire therefore to refer my readers to p. 776, Vol. II of this work, from which I quote the following language:

"Drugs and medicines are, in all countries, admitted to be necessary. They are valuable when properly used, but liable to prove injurious, dangerous, or even fatal to health and life when abused or ignorantly used, or when one medicinal substance is substituted for another through ignorance, accident or design. The public is necessarily held to be powerless to protect itself against the dangers attending the preparation, vending and use of drugs, since special training, knowledge and experience, such as the public cannot possess, are necessary to guard against these dangers."—*Peterson and Haines*.

"In the purchase of drugs the customer must rely upon the druggist to furnish the article called for. He is not held to the rule that he must examine for himself. In the very nature of things the druggist is held to *warrant* that the drugs or medicines he sells are of the character called for."—*Jones vs. George*, 56th Tex., 149.

"Since the sole object of any law regulating and restricting the practice of pharmacy or the preparation and dispensing or vending of drugs and medicines to the public, or directly or indirectly to persons by whom they are to be used must be the proper protection of health and life, it is evident that the exclusive right conferred upon registered pharmacists is merely a part of the means by which the end in view may be attained, and that the qualifications, duties, obligations and responsibilities imposed upon them in return for that exclusive right constitute the only features of value to the public. All pharmacy laws, therefore, demand that the registered pharmacist shall be educated and trained in such manner that he is competent to perform his duties properly and safely, and that he shall in fact actually perform his duties with a degree of faithfulness and care proportionate to the danger involved."—*Peterson and Haines*.

"It is the duty of the druggist to know the properties of his drugs and to be able to distinguish them from each other. It is his duty so to qualify himself, or to employ those that are so qualified, to attend to the business of compounding and vending medicines and drugs that one drug may not be sold for another. He cannot

escape responsibility on the pretext that the use of one drug for another was an accidental or innocent mistake. It will not avail him to claim that he had used extraordinary care and diligence in preparing or compounding the medicines as required, etc. He is liable at the suit of the party injured for damages *at the discretion of a jury*."—Fleet vs. Hollenkemp, 52 Ky., 219.

"Druggists are liable in damages to the party injured for negligence or want of skill in the compounding or sale of medicines. Druggists, apothecaries and all persons engaged in giving, compounding or vending drugs and medicines should not only be required to be skilful, but should also be exceedingly cautious and prudent. All persons who deal with deadly poisons and noxious and dangerous substances are held to a direct accountability. A druggist is held to a special degree of responsibility. The care required must be commensurate with the danger involved, and the skill to be exercised must correspond with that superior knowledge which the law requires. If in compounding a medicine, the druggist grinds the different articles of which it is composed without properly cleansing the mill, he is liable for the injury caused thereby."—Fleet vs. Hollenkemp, 52 Ky., 219.

"If the pharmacist sells or dispenses morphine or strychnine, when quinine is called for, he cannot escape responsibility for consequent disaster on the plea that he had received it labeled 'quinine,' that he believed it to be just what the label indicated and had no reason to believe otherwise. Courts have decided that it is his duty to subject the medicines he dispenses to proper tests and to detect mistakes and frauds. If the attending physician in a critical case decides that the only means by which he might be able to save the patient's life is the immediate administration of as large a dose as may be given of an extremely potent well-known remedy, then the patient's life may be lost if the pharmacist dispenses an article of twice the prescribed strength or one which has become wholly inert."—Peterson and Haines.

Having called attention to the general proposition that it is the law's intention to protect the public against any intrusion upon the physician's prescription by the druggist, and also that such protection under the present existing conditions is absolutely necessary in order that the health of our citizens may not suffer in consequence of drug substitution, we come now to the consideration of the specific opinion handed down by Mr. Justice Gaynor in denying the motion for a new trial in the civil action of "*Laturen vs. Bolton Drug Company*," and to which I have referred in previous contributions when considering the merits of this case. The learned justice in this opinion says:

"... the pharmacist saw that it (referring to the prescription) only called for a patent medicine put up and sold in bottles by Merrell (at Cincinnati). It did not call for an original

bottle of the medicine, but for a smaller quantity in a four-ounce vial."

Thus the impression is given by the learned court that the preparation prescribed is a quack nostrum, such as is sold in most of the drug stores, over the counter, whereas the real truth is that the preparation prescribed, namely, *Elixir Pinus Comp. Cum Heroin* (Merrill's), is one the full formula of which is printed on each label.

This fact alone removes it from the list of secret and so-called patent medicines, and places it among the list of strictly ethical, pharmaceutical products, such as those manufactured by Squibb, Schieffelin, Sharp & Dohme, Parke, Davis & Co., and a host of others. The preparation in question is no more a patent medicine, in the general acceptance of the term, than is Squibb's diarrhoea mixture, or is the compound cathartic pill of the United States Pharmacopœia. Under no circumstances whatever is it possible that any but physicians can utilize it. The public can no more adapt this preparation to its own use, without proper medical advice, than it can use Basham's Mixture, Donovan's Solution or chloroform. The public would not know what to do with it.

The W. S. Merrell Chemical Company, who manufacture this preparation, is a chemical house of many years' standing (since 1830) and known only to the professions of pharmacy and medicine. Its pharmaceutical preparations and chemical products are not therefore patent medicines, as the learned Trial Justice would have us believe. The Merrells are manufacturers of pharmaceutical and chemical preparations, the integrity of which is beyond question, and the use of which is entirely in the hands of the physician and the pharmacist.

The following quotation from the first page of their catalogue is quoted in support of this statement: "The preparations of this company meet the requirements of the kindred professions of medicine and pharmacy. They are not adapted to popular use nor are they supplied to the general public under *any circumstances*."

In reference to this question of so-called patent preparations, I might add in passing, however, that the chief point in regard to trade-marks and patents on pharmaceutical preparations is that there is nothing objectionable to either of these, provided always that the composition of the substance or mixture is known. This is the attitude, in reference to this matter, taken by the Council of Pharmacy and Chemistry of the American Medical Association.

Referring to the next sentence in the learned opinion, I regret to be obliged to confess that the preparation, being a liquid, is "*put up and sold in bottles*." I recognize that this putting of liquids in bottles, on the part of the manufacturer, is a grievous error. In order to please the learned Justice the liquid preparation should be put up in pasteboard boxes or in paper bags. In order to meet the requirements of the opinion I

should myself confess to a very serious oversight in writing the prescription in that I did not order an original bottle of the preparation. "*Elixir Pinus Comp. Cum Heroin*" is shipped to the pharmacist in pint bottles, in half-gallon bottles, and also in five-pint bottles. As I am not practicing veterinary medicine I did not prescribe an original bottle of the mixture, neither did I order it to be used for ablutionary purposes.

Another point which seems worthy of passing comment—the prescription did not call for "*a small quantity in a four-ounce vial*," as the learned justice states in his opinion. It distinctly called for four ounces of the mixture. I did not specify in my prescription the size of the bottle in which the medicine was to be dispensed, neither did I object to the size of the bottle. My objections and criticisms were limited to the mixture which the pharmacist put in it. There is considerable difference between a prescription which calls for four ounces of a given mixture and one which calls for "*a small quantity in a four-ounce vial*."

This latter statement by the learned Trial Justice is a fair sample of the accuracy with which he handled the whole question. In dealing with the subject of the dispensing and the administration of poisonous drugs slipshod and inaccurate statements should not be tolerated by the public, even when they emanate from so renowned a toxicological authority as is Mr. Justice Gaynor.

But let us proceed to the next sentence contained in the opinion: "There was a bottle in stock, the printed label thereon bearing the name of '*Elixir Pinus Compositus*' which the prescription called for, that being the name under which the medicine was advertised and sold."

This is also an improper statement of the fact. The prescription *did not* call for "*Elixir Pinus Compositus*" any more than it called for calomel. The prescription called for "*Elixir Pinus Compositus Cum Heroin*" (*Merrell's*), which is a separate and distinct preparation differing from every other known preparation. This fact cannot be altered by egotistic judicial expression together with the irrelevant juggling of words. The prescription speaks for itself.

The learned Court says further, when referring to the preparation, "*that being the name under which it is advertised and sold*." Here again the suggestion is conveyed to the public that the preparation in question is an *advertised* quack nostrum, the truth being that the medicine is simply listed with hundreds of other pharmaceutical preparations on the catalogue containing the names of the manufacturer's products. It is possible that the medical journals may mention the article, but beyond this it is not advertised in any way.

"But the pharmacist saw that the doctor's prescription had after the name of the said *Elixir* (as we have seen) the additional two words '*Cum Heroin*,' which is Latin for 'with Heroin.' These two words were not on the label of the

bottle. The pharmacist therefore looked into the pamphlet advertisement of Merrell's patent medicines which he had in the store, and found that Merrell also put up the said '*Elixir Pinus Compositus*' in the same bottle with the additional two words under it on the label 'with Heroin,' not '*Cum Heroin*.'"

Having seen these two words the pharmacist should have recognized that the Heroin was the all-important ingredient named in the prescription. He must also have known that the *Elixir* depended upon the Heroin for its principal usefulness to the patient. *Of course* he saw the two words. He could not help seeing them. It was the seeing of them that made him commit the crime of substitution. Had he not seen them there might be some excuse for his action. But having once observed them they told him that Merrell made the specific preparation named in the prescription, and not having it in his store he went deliberately to work to manufacture a substitute. *He did not* look into the catalogue of Merrell's goods, as the learned Justice has stated. That is precisely what he did *not* do. I know this to be true because in a conversation which I had with him on the telephone on the seventeenth day of April, 1903, just one day after he had dispensed the substituted mixture, he told me distinctly to the contrary of Mr. Justice Gaynor's statement on this point.

The plaintiff's counsel at the trial of the case attempted to introduce in evidence this telephonic conversation, but it was excluded by the learned Justice on technical grounds. Learned counsel whose opinion I have sought on the question of the admissibility of this testimony, have informed me that it is, in their opinion, clearly admissible.

If the pharmacist had consulted Merrell's catalogue for the purpose of examining the formula of the prescribed preparation, before dispensing the prescription, why did he add one-twelfth of a grain of Heroin to each dose instead of one-twenty-fourth of a grain, which amount of Heroin the formula shows that the mixture should contain? The real truth concerning the amount of Heroin which was administered to the plaintiff is contained in the telephonic conversation previously referred to, which conversation in the interests of equity and justice should have been admitted in evidence.

A careful, impartial and equitable trial of this case will disclose the fact beyond any question that twice as much Heroin as was ordered for this plaintiff, together with one-sixteenth of a grain of the acetate of morphine, which was not ordered, was administered to her with each dose of the substituted preparation.

The learned Justice, in his opinion, further says: "The pharmacist, therefore, in order to fill the requirement of the words '*Cum Heroin*' in the doctor's prescription, added the said one-twenty-fourth of a grain of Heroin to each dose and thereby literally filled the prescription, which as we have seen called for '*Elixir Pinus Com-*

positus' with the added two words 'Cum Heroin' (with Heroin). There was plainly no negligence in this."

Thus, with one "fell swoop" does the learned Justice shatter to the ground the fundamental principle of pharmaceutical training and knowledge.

Let us see for a moment where pharmaceutical action based upon the decision of the learned Judge on this point will carry us. Suppose that the druggist receives a prescription for Syrupus Hypophosphatum Cum Ferro U.S.P. Does the mere addition of iron to the Syrup of Hypophosphites, that is, the throwing of them together as was done by the defendant in the dispensing of the prescription for this plaintiff, constitute the proper dispensing of the prescription, under the law? If he is not held to some rule, what form of iron will the druggist use? How will he mix it with the Syrup of Hypophosphites? What will be his "modus operandi"? Will the iron used be a soluble salt of the metal or will it be the reduced iron? Under the decision of Mr. Justice Gaynor the mere mixing of iron, *in any form*, and Syrup of Hypophosphites together, is all that is necessary to fill the prescription. No skill whatever is required in the manufacture of the preparation, and no art is necessary in putting the ingredients together. Should the prescription happen to call for "Hydrargyrum Cum Cretæ" (mercury with chalk), the same ridiculous rule, under this opinion, would apply. Throw the mercury and chalk together in any careless and unscientific manner which may happen to suit the convenience of the dispenser, and the prescription may be said to be properly filled. But every druggist and every physician recognizes with a single glance at the prescription that it calls for a specific and intricately prepared article, which must be manufactured according to certain well-defined rules—those of the pharmacopœia. So also the prescription which was written for this plaintiff called for a specific article which must be manufactured in a definite and technical manner in order that it may bring about proper pharmaceutical, chemical and therapeutic results.

It would be interesting in this connection to know what preparation of Heroin the druggist really used in filling the prescription for the plaintiff. No one but himself knows, and he swore that he dispensed Heroin proper. The formula calls for the hydrochloride of Heroin, but under the decision of the learned Court the druggist "*literally filled the prescription*" and was therefore not negligent under the law. The mere fact that he may have dispensed Heroin when the formula called for the hydrochloride of that drug, is a matter of no consequence. The prescription read "Cum Heroin," or "with Heroin," and under the decision of Mr. Justice Gaynor it was properly filled.

The next sentence contained in the opinion is thoroughly worthy of the immortal Captain

Bunsby, and is therefore filled with wisdom—"The bearings of this observation lays in the application on it." It reads as follows: "The prescription was none too careful; it did not even correctly follow the words of the label of the patent medicine bottle it was to be filled from, but it was intelligently read and filled."

Thus does the learned Justice deliver himself on the subject of prescription writing. Is it not remarkable that at the trial of the case, when the prescription was introduced in evidence, that no fault was found concerning the manner in which it was written?

The prescription was identified by the defendant company's manager, Mr. Wilson, who had himself dispensed it, and it was read by him in open court without the slightest difficulty or criticism. There was at that time no suggestion made by the defendant that the phraseology of the prescription was unusual, irregular, ambiguous or illegible. Mr. Wilson testified simply that upon receiving the prescription he read it and at once recognized that he did not have in stock the preparation which it called for, and also that after communicating with the defendant company's main store by telephone and having been informed that they did not have it there, he took it upon himself to put together what *he thought would be a perfectly safe dose for administration to the plaintiff*.

It was not until some time after my article entitled "Is Substitution Legalized?" had been published in the MEDICAL NEWS that it was discovered by the learned Trial Justice that the prescription was "*none too careful*."

To discuss the further criticism of the learned Court as expressed in the sentence "*It (meaning the prescription) did not even correctly follow the words of the label of the patent medicine bottle it was to be filled from,*" is simply to expose the utter ignorance of the trial Justice concerning the whole subject of practical pharmacy, together with prescription writing and dispensing.

But a few moments devoted to this subject may be the means of adding information where it seems to be sadly needed. The criticism of the learned Justice concerning the lack of care on the part of the physician in writing the prescription is based entirely on the fact that the word "Cum" Heroin was used in writing the prescription instead the word "with" Heroin. The reason which he assigns for this criticism is that the word "with" instead of "Cum" is found printed on the label of the shop bottle containing the prescribed preparation and that therefore the prescriber "*did not even correctly follow the words of the label, etc., etc.*" This criticism is just one more evidence of the fact that the learned Justice seems to be attempting to write a legal opinion on a subject concerning which he apparently knows little or nothing, and also concerning which subject he does not seem desirous of properly informing himself. A reference to almost any authority on prescription writing

would have taught him that there are but two correct methods of writing prescriptions by English-speaking physicians. They must designate the ingredients ordered in the prescription in either Latin or English, but which ever of these languages is selected by the prescriber he is not justified in mixing the two together when indicating the ingredients wanted, any more than a lawyer, practising his profession in the city of New York, would be justified in serving a summons which was printed or written partly in French and partly in English or Russian. There are, therefore, two ways in which the prescription in question can properly be written. The first is as follows:

Elixir Pinus Compositus Cum
Heroin (Merrell's)..... ℥iv

and the second:

Compound Elixir of Pine with Heroin (Merrell's)
four ounces.

Either of the above methods is correct, and the first is that which was selected by the prescriber of the medicine for the relief of the plaintiff in this action. If the prescription is written in Latin the word "cum" is used. If written in English the English word "with" is substituted.

Moreover, prescriptions are not written with the intention that they shall follow the shop label. It is a matter of no consequence to the prescriber or to the consumer what may be printed on the label of the receptacle in which the druggist keeps his castor oil, provided always that castor oil is dispensed when it is ordered. The druggist may keep it in a bottle or other receptacle which is labeled *Oleum Ricini*, *Oleum Palma Christi*, *Ricinöl*, *Olei Ricini Communis*, or just plain Castor Oil. Any and all of these methods of designating castor oil are perfectly correct, and the druggist must dispense castor oil and nothing else when either of the above methods of prescribing the article is used by the physician. If the pharmacist is not familiar with these names he must become familiar with them. To be so is a part of his duty as a pharmacist. To say of the physician that he is negligent in writing a prescription because he does not follow the shop label is absurd.

Suppose a physician writes a prescription for "*Tinctura Cinchonæ Composita*" and the pharmacist fills the prescription from a bottle which bears the label "*Huxham's Tincture*," is the physician to be held in error because he did not follow the shop label in writing his prescription?

Or, again, paregoric is prescribed in the following words, "*Tincture Opii Camphorata*," and the druggist dispenses the prescription from a bottle which is labeled "*Tinctura Camphoræ Composita*," is either the prescriber or dispenser to be criticised for not having followed the shop label, provided always that paregoric is dispensed? But the learned Trial Justice says "*the prescription was none too careful, because it did not follow the shop label.*"

I am almost persuaded, even thus early in this detailed examination, that the learned Court has forgotten some of its early medical training. "*But the prescription was intelligently read and filled,*" is the learned Jurist's next sentence. If the prescription was intelligently read, why did not the pharmacist dispense it exactly as it was written? There was absolutely no reason why he should not do so, except that, according to his sworn testimony, he did not have in his store what the prescription called for. How does it happen that he was enabled to dispense it properly, and exactly as it was written, immediately after his act of substitution had been discovered? There was no trouble at that time for him to obtain the proper preparation from a neighboring druggist, and to dispense it. After his substituted mixture had caused the plaintiff to suffer from opium poisoning and he was caught like a thief, "with the goods on him," there was no trouble for him to obtain the proper preparation.

Why did he not take the trouble to send to his neighbor in order to obtain the mixture in the first place? It was because he thought he could substitute without being found out.

And so the prescription was "*intelligently filled*"!!

Is it pharmaceutical intelligence to dispense twice as much heroin in a given mixture as is prescribed by the physician? Is it pharmaceutical intelligence to dispense two grains of the acetate of morphine in a four ounce mixture when no morphine is prescribed?

If this dispensed mixture had been given to a child, it might have killed it.

Is this sort of dispensing of drugs on the physician's order of the character which may be called, by the Supreme Court of this State, intelligent dispensing?

Is the throwing together for human consumption, of drugs, in this reckless manner, worthy to be called, by legal authority, intelligent pharmacy?

If so, then let us do away with our colleges devoted to pharmaceutical education and training. Let us get rid of our pharmacy laws. They are mere hindrances to the advancement of pharmaceutical science. They are jeopardizing the public welfare. Let us have all of our prescriptions dispensed in the manner in which Mr. Justice Gaynor is pleased to call intelligent.

"It is claimed, however," says the learned opinion, "that there was a negligent oversight by the pharmacist in that he left in one ingredient too many. The pharmacist properly added $\frac{1}{24}$ th of a grain of Heroin for each dose, but it was claimed that he negligently left in $\frac{1}{16}$ th of a grain of morphine acetate for each dose. And that came about as follows."

There is no process of reasoning, neither is there any explanation by which it can be morally or legally asserted or proved that the druggist acted within his proper sphere when he added any Heroin whatever to any mixture for the purpose

of filling the order of the physician for this plaintiff. The law governing pharmacists is very explicit on this point. The prescription called for a specific preparation made by Merrell, of Cincinnati, and not made by the Bolton Drug Co., and it was the duty of the pharmacist to dispense that preparation and nothing else. The law does not give him the right to tamper or substitute. Moreover, it is a matter of no consequence in what manner the defendant "left in" one-sixteenth of a grain of morphine acetate in the substituted mixture. The question to be considered here is simply, Did he dispense a mixture containing the acetate of morphine when no acetate of morphine was prescribed? If he did, he was guilty of negligence under the law, and it is for a jury to say what, if any, damage was sustained by the plaintiff. Juggling with words and multiplying explanations do not alter the real facts.

The opinion continues in the following language: "The question therefore arose whether if it be conceded that there was a negligent oversight by the pharmacist, the plaintiff could have been poisoned by it. Heroin is a preparation of morphine, as is also morphine acetate, so that the two together in the prescription made more morphine to the dose than if the one-twenty-fourth of a grain of Heroin only had been in it. But the uncontradicted evidence in the case is that both combined would make only one-tenth of a grain of morphine to the dose."

Nothing could be more foolish than this. The idea of adding one-twenty-fourth of a grain of Heroin together with one-sixteenth of a grain of morphine acetate and designating the result as one-tenth of a grain of morphine is absurd. It is just as unreasonable a proposition as it would be to suggest the adding together of one-twenty-fourth of a grain of common salt and one-sixteenth of a grain of cane sugar and referring to the result as one-tenth of a grain of sugar, or an equal quantity of salt.

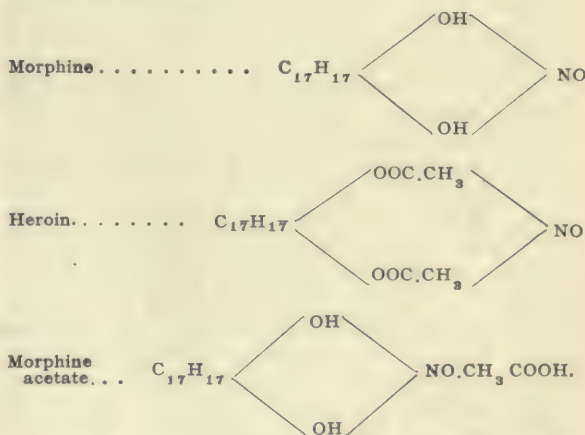
Heroin is a *derivative* of morphine—not a *preparation* of that drug. It is abstracted from morphine just as phenacetin is derived from coal—by chemical process. But no sane person would think of adding together one grain of coal and one grain of phenacetin, and designating the result as two grains of coal.

Suppose, for example, that the pharmacist, whose testimony was guiding to the learned court in the trial of this action, were to receive a prescription calling for salicylic acid and, further, that he found on investigation that he did not have in stock the requisite amount of salicylic acid with which to fill the prescription, would he be justified in adding to the quantity of salicylic acid which he had on hand a sufficient quantity of carbolic acid to make up the deficiency? Certainly not. And why? Because of the decided difference in the two drugs. Carbolic acid is a deadly poison and salicylic acid, although made directly from carbolic acid, is a

comparatively harmless drug, which is used in large quantities for human consumption. Yet, if the reasoning of Mr. Justice Gaynor be followed, in dispensing prescriptions, the pharmacist would be perfectly right in doing so, because carbolic acid and salicylic acid are both preparations, or derivatives of the same substance, namely, coal.

Again, would the pharmacist add one-twenty-fourth of a grain of heroin and one-sixteenth of a grain of apomorphine together and give as the result of such addition one-tenth of a grain of morphine? Of course not. Yet both of these drugs are derived from morphine. They differ very materially, however, in their chemical properties and physiological action, apomorphine being a very powerful emetic, whereas heroin is a respiratory tonic and pain reliever.

Referring to the chemistry of the subject, nothing can be more ridiculous than the assumption of the learned Justice that morphine and heroin are practically identical. While it is true that heroin is derived from morphine, the latter drug has been so modified in the process of its manufacture as to constitute an entirely different chemical body exhibiting distinct and separate physiological properties not possessed by morphine, such, for example, as the specific effect of heroin upon the respiratory organs, together with its freedom from the general narcotic effects which are characteristic of the action of morphine. There is a wide difference between a mere salt of morphine such as the sulphate, acetate, or the hydrochlorate, and a substitution product of morphine, such as heroin. Codeine, for example, is methyl morphine, that is, morphine in which an atom of hydrogen has been *replaced* by the methyl group CH_3 . This chemical replacement is what constitutes the difference in chemistry between a preparation and a derivative. In heroin the two hydroxyl groups of morphine have been replaced by acetyl groups (CH_3COO), giving it an entirely different formula, as follows:



A comparison of these formulæ will dispose of the question as to whether from the standpoint of the chemist, these drugs may be assumed to

be identical and will show also the absolute absurdity of such a proposition.

The difference in the physiological and therapeutic effects of Morphine (and its salts) and those of Heroin is very marked. The diacetic-acid-Ester of morphine (Heroin) was introduced into therapeutics by the Farbenfabriken of Elberfeld in Germany. This establishment is the largest and most complete of its kind in the world. It has produced many of the most modern medicinal therapeutic agents known to the medical profession, and its reputation for scientific accuracy and integrity in the manufacture of chemical and pharmaceutical products is world-wide. Its methods of experimentation are conducted along physiological lines by some of the ablest physiological chemists known to science. Its laboratories have given to the medical world hundreds of drugs which have proved of great therapeutic value, and many of the standard text-books on therapeutics have included some of these drugs in their lists of medicinal therapeutic agents. Among these may be mentioned phenacetin, protargol, sulfonal, veronal, trional, aspirin, euphen, heroin, and a host of others. I have observed that one of the aims of this establishment seems to be to rid many of the drugs included in our materia medica of their unreliability of therapeutic action by producing absolutely pure chemical products or derivatives of those drugs, and in this way placing many of our modern medicinal therapeutic agents on a much more scientific basis than they have ever attained before in the history of medicine. For example, every physician admits the great power for good of Opium and its chief active principle—morphine. But medical men also acknowledge the ill effects which follow the administration in its ordinary forms, of this drug. The physician prescribes and administers it hypodermically, for the relief of pain, with reluctance, because he is well aware that its administration is liable to be followed by unpleasant symptoms such as nausea and constipation, together with a locking up of nearly all of the normal secretions. Then there are the toxic effects upon the nervous system resulting in dizziness and lethargy, combined with circulatory disturbances, to say nothing of the great tendency in the use of this drug to produce the opium habit, together with the idiosyncratic tendencies which *prevent* its administration, absolutely.

It will therefore be admitted that any derivative of opium which gives to the patient the beneficial effects of this drug without producing its unpleasant effects should be received with gratification by the entire medical profession. So far as I personally have been able to observe its therapeutic effects, I am constrained to the opinion that Heroin supplies a long-felt want in this direction and literature is replete with reports from the medical world which seem to confirm these observations. Its therapeutic action has been shown to be very different from that of

morphine and its salts. This question is so well settled as to admit of no further discussion.

Experiments on animals, which have been conducted by Professor H. Dreser, of Germany, have clearly demonstrated that heroin and morphine have entirely different actions upon the respiratory tract. Heroin diminishes the number of respirations and increases the volume of inspired air; it also increases the force and length of inspiration. In the words of Professor Leo (*Deutsche medicinische Wochenschrift*, March 23, 1899) it is therefore a true respiratory tonic analogous in its action to that of digitalis upon the heart. While it quiets cough, through its sedative action upon the sensory nerves of the bronchial mucous membrane, it does not diminish the excitability of the respiratory centers to the normal stimulus (carbonic acid gas).

On the other hand, the influence of morphine in slowing the respiration is due to the fact that it dulls the sensibility of the respiratory centers. Heroin, on the contrary, stimulates the respiratory centers, and thereby increases the force of the respiration.

In an article on the therapeutics of heroin by Dr. Eugene Meda (*Charlotte Medical Journal*, January, 1900), the author discusses the effects of heroin on the respiration in the following words: "In regard to the influence of morphine upon respiration we know that this is not exerted for a long time, either in man or in the animals, and when there occurs a modification it consists in a slowing, due to the diminished excitability of the respiratory centers. This slowing, however, is very far from occurring with those characters of regularity, of increase in length of the respiratory movement, and of augmentation of its strength, which are so important in order to prevent a stagnation of the secretions which are obtained with heroin."

It will readily be seen from the foregoing that morphine is a respiratory tonic. In the treatment of acute and chronic inflammatory processes of the pulmonary tissue, together with acute catarrhal inflammations of the bronchial mucous membrane resulting in cough, heroin seems to have almost entirely supplanted opium and morphine. It is administered in the form of the hydrochloride in much smaller doses than morphine is given, and its administration is not attended with any of the narcotic and unpleasant after-effects which usually follow the administration of opium, or any of the salts of morphine. According to the clinical reports of a large number of authors, doses of one-twenty-fourth of a grain of heroin are always tolerated by the stomach and never give rise to nausea or vomiting.

(To be Continued.)

Annual Meeting of the Boston Medical Library.—This was held at the Library, November 14, 1905. Memorial remarks on Dr. James Reed Chadwick were made by Dr. Clarence T. Blake and Dr. T. G. Mumford.

dry-congresses and the publication of periodicals exclusively for nurses. He says that many nurses receive an education in medicine but little inferior to that given in many medical colleges. The demand for trained nurses has practically increased tenfold in the past ten years, and untrained women are rushing into the profession owing to the pernicious advice of well-meaning friends. Eight States have adopted laws governing the registry of nurses. He prophesies that the effect of competition will be good in that it will drive out of the field fakirs and quacks, the osteopath and a host of frauds, and it will compel the physician to be more careful and to keep abreast of the advances in his profession.

Infection of Chinese with the Asiatic Blood Fluke.

—H. G. BEYER (*Am. Med.*, September 30, 1905) says this case is interesting, as it represents the second of the kind recognized from China and, at the same time, establishes a new locality for the parasite to which its further spread and distribution may be traced. Its presence in the Philippines may now be discovered at any time. The report is accompanied by a complete clinical history furnished by Dr. O. T. Logan, of Changteh, China. The identity of the parasite discovered in the present case with the one obtained by Catto from a Chinaman having come from the province of Fukien to Singapore, was easily established by a comparison with one of Catto's original preparations, fortunately in the possession of Dr. Stiles. Perhaps the chief distinguishing characteristics of the egg are its size and the absence of a spine. The average obtained from nine of the eggs is 72 microns in length and 48 in breadth.

Typhoid Fever in the Philippines.—WILLIAM DUFFIELD BELL claims that typhoid fever in the Philippines is easily preventable (*Med. Rec.*, September 30, 1905) where quarantine regulations are enforced. The climate it not an important factor in the development and continuance of the disease. The dry season covering the months of February, March, April and May, reaches a mean temperature of 87°; the rainy season, from June to October has a mean temperature of 84° F.; whereas the cool season, with a temperature of 72°, is the one during which the highest mortality occurs among the natives. The real cause of the widespread prevalence of this disease is the fruitful soil for the propagation of the typhoid germ, which the universal filth that surrounds and permeates the houses of all Filipinos furnishes. Polluted wells and streams supply the potable water, and this, together with contaminated food, constitutes the chief source of infection, whereas milk plays only a minor rôle. In one town where no water was drunk or utilized for washing kitchen utensils that had not been thoroughly boiled, not a case appeared among the garrisoned troops. The course of the disease varies little from that it assumes in the United States. A careful differential diagnosis is necessary to distinguish it from tropical dysentery, malaria, and also from dengue, which in its early stages is often mistaken for typhoid and may even coexist with it. Two forms of fever were observed. One was the primary fever, due to the infection the typhoid germ produced throughout the system, and the other, appearing as the disease progressed, indicated from symptoms such as a dry, brown tongue and wild delirium, a septicemic process.

Epidemic Cerebrospinal Meningitis.—H. SCHOTT-MÜLLER (*Münch. med. Woch.*, Nos. 34 to 36) states that not every case of epidemic cerebrospinal meningitis is caused by the meningococcus. The *Streptococcus mucosus* must also be regarded as an aetiological factor, though epidemics are less frequent than with the men-

ingococcus. The lumbar fluid withdrawn from epidemic meningitis cases was usually slightly turbid and soon deposited a greyish sediment; in a few cases a perfectly clear fluid or almost pure puss was obtained. The sediment consisted almost exclusively of polynuclear leucocytes, though some cases were encountered where the lymphocytes predominated. The appearance of the fluid may change from day to day. The number of bacteria found is not in proportion to the appearance of the fluid or the severity of the disease. The cocci have been found as early as the second day of the disease and as late as the fourth week. The best culture medium for the meningococcus is blood agar and a growth could be obtained on this in 43 out of 49 cases. In three instances a mixed infection was present (tubercle bacillus, streptococcus and pneumococcus). The meningococci isolated from different patients were always the same and also preserved their morphological and biological characteristics on artificial media. There are no different varieties of this germ and variations described by different authors are due to contaminations, for in many instances the meningococcus does not grow properly or is rapidly overgrown by saprophytes. The infection probably enters through the nose and is carried to the meninges by way of the lymphatics. The following clinical facts are of importance: About one-half of the patients are children and the disease generally sets in suddenly, without prodromal symptoms. The initial signs are chills, fever, headache, pains in the nape of the neck, vertigo, tinnitus and sometimes vomiting. In children, convulsions are the rule. The symptoms of the illness are generally fully developed during the first twenty-four hours. Three types may be recognized, viz., (1) the foudroyant type, (2) the subacute or acute form and (3) the abortive form. The first form is rare, the last is hardly ever seen in hospitals. The majority of symptoms when the disease is once well developed, arise from the central nervous system. They often vary in intensity from hour to hour and the temperature is also subject to considerable variations. Herpes was seen in 30 per cent. of the cases. A splenic tumor is rare and the blood usually shows a leucocytosis which may reach 65,000. Optic neuritis occurred in only about 18 per cent. Some complications seem to be characteristic for meningococcus meningitis, such as painful effusions into the joints, epididymitis, extreme emaciation and exudative pericarditis. In the fluid from the pericardium the meningococcus can usually be detected. Blood cultures are only rarely positive. The mortality was 50 per cent. The differential diagnosis has to consider typhoid, tetanus, croupous pneumonia, staphylococcus sepsis and the coma of uremia and diabetes. A lumbar puncture will, however, clear the condition in most instances. In tuberculous meningitis, the spinal fluid is as a rule less turbid, the onset is more insidious and other tuberculous foci are generally present. In pneumococcus meningitis the lumbar fluid generally contains many pneumococci in every field of the microscope and cells are very scant while the course is very acute with bad prognosis. Other germs which have been encountered from time to time in the spinal fluid by the author are *Streptococcus erysipelatus*, staphylococci, typhoid and pseudo-influenza bacilli. The only method of treatment which has brought about results is repeated daily lumbar puncture. The outlook for obtaining an immune serum is very poor, since animals are not very susceptible to the meningococcus. Good results may, however, be obtained by using the serum of convalescents, particularly if this is injected directly into the spinal column. In cases where hydrocephalus is suspected, the skull must be trephined.

Treatment of Strychnine Poisoning and Tetanus by Spinal Anesthesia.—It has been shown that under the influence of both strychnine and tetanus toxin the reciprocal inhibition normally produced by an afferent impulse is converted into excitation. A. E. RUSSELL (*Lancet*, September 23, 1905) states that the convulsions produced by strychnine are markedly related to afferent impressions. Thus, in lower animals and man poisoned with strychnine only a very slight stimulus is necessary to evoke a violent spasm. The same condition also obtains in tetanus. It might be hoped, therefore, that if afferent impressions could be prevented from reaching the spinal cord the convulsions might be either prevented or at least diminished. Experimenters have shown that in frogs dipped in a solution of cocaine and in frogs the dorsal spinal roots of which have been divided, no convulsions occurred after the injection of strychnine. Spinal anesthesia produces a temporary physiological section of the posterior roots, and could then conceivably annul the convulsions produced by strychnine. Experimentally this has been shown to be true, which strongly suggests the advisability of its use in man. Since cocaine solutions cannot be boiled and since complete sterilization is of the greatest moment, β eucaine, solutions of which may be sterilized, is preferable. Small doses of either drug should be employed, say two cubic centimeters of a one per cent. solution of cocaine, and one to two cubic centimeters of a three per cent. solution of β eucaine. Since death from strychnine poisoning usually occurs within two hours, treatment must be instigated at once and repeated if convulsions recur. Fortunately strychnine is rapidly eliminated. It is to be remembered that in large doses and in the late stages strychnine may produce a paralysis of the motor nerve endings not unlike curare. Tetanus appears to offer another field for this therapeutic measure. The spasms are presumably due to an excitation of the motor mechanism of the spinal cord, whether, like strychnine, by increasing the sensory irritability, or by directly acting on the motor cells, is not certain. But by inducing anesthesia great relief of pain would be effected. Eucaine and antitetanic serum could be injected together, and the addition of adrenalin might prove a further advantage.

Pneumothorax in Tuberculous Subjects.—Pneumothorax, writes F. PARKES WEBER (*Lancet*, September 16, 1905) has been variously estimated as occurring in from 3½ to 10 per cent. of all cases of phthisis. In by far the majority of cases it is due to pulmonary tuberculosis. Spontaneous pneumothorax may in reality be connected with tuberculosis, in so far as it may be due to the rupture of an adherent emphysematous bulla. The pneumothorax is the direct cause of death in 60 per cent. of cases where it occurs; 80 per cent. of such cases die in less than a year and only 10 per cent. live over five years. Besides being due to ruptured adhesions, it may be the result of scarring or to a counter-infection, producing softening of a subplurular tuberculous nodule. The physical signs will depend on whether the pneumothorax is complete or limited. Adhesions in the front of the lung may check the displacement of the heart and mediastinum, which constitutes one of the most important physical signs in cases of complete pneumothorax. In cases where the process is limited, the onset may be overlooked, but in complete cases there is usually urgent distress, dyspnea, sometimes faintness and often severe pain. The initial distress is likely to demand relief by paracentesis. One or more of the best known physical signs, such as amphoric breathing and the bell sound, may be absent. Subphrenic abscess is likely to be mistaken for a limited pneumothorax. In many cases the pneumothorax must be regarded as the terminal stage of

the tuberculous disease. Occasionally patients die almost immediately after the onset. A few days after the onset the physical signs show the presence of fluid as well as air in the pleural cavity. The fluid is generally serous at first, and in some cases it never becomes really purulent. The patient's organism succeeds in accommodating itself to the alteration in its respiratory mechanism, so that a kind of accommodation occurs, the extent of which may relatively indicate the prognosis. In most cases the pneumothorax occurs when the tuberculous process is far advanced, but it may occur at any stage, even from a single lesion. In a few cases the condition has disappeared without any effusion of liquid. Emphysema may, in certain cases, be considered the connecting link between tuberculous lesions and pneumothorax. The prognosis as to partial or complete recovery must depend on the extent of the tuberculous disease, the general condition, and on the local and general treatment adopted. The treatment of tuberculous pneumothorax is that of pneumothorax generally, together with the hygienic measures peculiarly suitable for pulmonary tuberculosis. During the onset stimulants may be required for collapse. In some cases sedatives are necessary. Aperients may be serviceable to reduce portal congestion. The patient should be kept as quiet as possible. Inhalations of oxygen may be of temporary use. When there is reason to believe that the distress is due to excessive tension, the air may be allowed to escape. This necessity only arises in a very limited number of cases. Every endeavor must be made to improve the patient's general condition.

Acute Illness Following Inoculation with Antityphoid Vaccine.—The general acceptance of the statement that antityphoid inoculation does no harm except for a certain amount of feverishness and local soreness has induced W. J. LINDSAY (*Lancet*, September 16, 1905) to report the following case. A civil surgeon, aged twenty-nine years, was inoculated in February, 1900, during a voyage to South Africa. Except for local soreness there was no constitutional disturbance. In August, 1900, after a leave of absence spent mostly in London, the patient again sailed for South Africa, and was again inoculated. The injection was made with antiseptic precautions and the dose given was less than the one recommended. Up to the time of inoculation the patient was, and had been for many months, in robust health. Symptoms set in the same evening, beginning with headache. This increased and remained a persistent symptom. Other symptoms present were furred tongue, bad taste, sensation of chilliness, anorexia, loss of energy, hard and quick pulse, insomnia, constipation, and fever ranging as high as 104° F. There was no rash, no cough, no vomiting nor arthritic pains. The illness lasted fourteen days. The local reaction at the point of inoculation was at all times insignificant. Typhoid, atypical typhoid, and toxæmia were discussed as possible diagnoses, the weight of opinion favoring the latter.

Physiology of Kernig's Sign in Cerebrospinal Meningitis.—ROULET (*These de Paris*, September, 1905) in explaining the phenomena of Kernig's sign, ascribes the hypertony of the flexors in meningitis to irritation of the spinal roots. The muscular hypertony leads to loss of elasticity and, perhaps, to diminution to the length of the muscles. The latter become too short to permit of complete extension of the leg, when the femur is flexed upon the trunk. Finally, Piéry sees in Kernig's sign only a defensive contraction of the flexor muscles of the thigh reacting against the painful elongation of the inflamed nerves of the cauda equina. The elongation of the

nerves occurs when the thigh is forcibly flexed upon the pelvis, the leg being simultaneously extended. On the ground of anatomic physiological data, the following explanation of the pathogenesis of Kernig's sign is given: When the thigh is flexed upon the trunk, and the leg at the same time extended (Kernig's position) the sciatic nerve becomes stretched. Thus in Kernig's sign we have, first of all, to do with the stretching of this nerve. In the healthy state, the stretching of the sciatic nerve seems not to produce any pathological conditions, since Kernig's sign has never been clearly demonstrated in healthy individuals, except when the thigh is flexed upon the trunk at a very sharp angle, *i.e.*, when the sciatic nerve is greatly stretched. In morbid conditions when the nerve itself is affected (neuritis sciatica), or the nerve roots are affected—which undoubtedly takes place in acute meningitis—the stretched affected roots react correspondingly; the posterior roots, by producing pain, which in Kernig's sign is pointed out by the majority of observers, and the motor roots by producing contractions of the corresponding muscles, in the case of the sciatic nerve, the flexor muscles. The pain arising from the stretching of the posterior roots makes the patient instinctively keep away from further stretching of the posterior roots, as it happens, for instance, in dislocations when the muscles respond with strong contraction to any active or passive movements in the dislocated joints, so that this explanation, which may be considered as a combination of Piéry's and Roglet's explanations, may be held, at least, as the simplest one we have for the understanding of the mechanism of Kernig's sign. The occasional occurrence of Kernig's sign in typhoid fever may be explained by the fact that the meninges are frequently affected in typhoid fever, so that the sign is due, not to the fever, but to the concomitant meningitis. The author concludes by stating that Kernig's sign may be considered as a standard sign of inflammatory meningeal lesions, and as being due to irritation of the spinal roots, produced by the stretching of the sciatic nerve.

SURGERY.

Ethyl Chloride as a General Anesthetic.—It is of the utmost importance to note that this drug has now been used in over 100,000 cases without a death, as a means of producing transient anesthesia. It is probably, as observed by Marcus, much superior to gas, if the all-important point of utilizing a rubber bag in connection with the apparatus for giving the drug be observed. J. W. McCARDIE (*Lancet*, October 7, 1905) states that this drug has practically been rediscovered. In the year 1847, Flourens observed that it caused the loss of consciousness similar to that induced by sulphuric ether. It was forgotten as a narcotic until ten years ago some Swiss dentists observed that when used locally a general anesthetic effect was produced in one or two instances. The author considers that it is essential to obtain the pure drug. He agrees with Marcus in that a bag should be attached to the inhaler, and states that as the specific vapor is 2.2, it will sink to the bottom of the bag and can be retained there for a long time. The best manner to detect impurities is to smell the fumes just as in the case of chloroform. There should be no disagreeable odor when some is allowed to evaporate from the palm of the hand. As to inhalers, he states that all that is needed is a bag inhaler of wide bore, which can at any time be used for etherization, if the ethyl chloride be unsatisfactory. The author's

method of giving it is simply to put three or four cubic centimeters into the bag. Quiet respiration is, in his opinion, the most important point, because it prevents any choking feeling. No air is needed until the patient snores. This avoids the inhalation of respiratory gases and decreases the post-operative headache. The author is explicit in stating that he can find no advantage in the use of the anesthetic called somnoform. He considers it to be less safe than ethyl chloride, because it contains ethyl bromide, and further because the last few doses in the bottle, unless used soon after the first, are likely to decompose and to produce serious effects if inhaled. He states that in all, seven deaths have occurred. Deaths have also occurred under somnoform. From a study of the seven cases, it becomes evident that three of the deaths were due to increase by the drug of swelling about the larynx.

In conclusion, the author states that ethyl chloride occupies a position midway between nitrous oxid and ether. It is more toxic than the former, and when used in proper cases nearly as safe as the latter. Nitrous oxid, as regard to safety, is still in a class by itself. Ethyl chloride should be used rather to replace chloroform and ether in certain cases than as a substitute for nitrous oxid. For short operations, needing complete muscular relaxation, it is of great advantage. In a preliminary to etherization it is unequalled.

Ligature of Almost the Entire Arterial Supply of the Leg.—That common iliac ligation is a relatively frequent operation is not to be denied. Bryant's Operative Surgery states that it has been ligatured sixty-nine times, and no doubt there are very many cases unrecorded. HENRY E. CLARK (*Brit. Med. Jour.*, October 7, 1905) states that in the case of a patient twenty-six years of age, who was stabbed in the side with a small penknife blade, he ligated with perfect recovery the profunda and common femoral arteries and common iliac artery on the same side. On reaching the hospital the patient was found to have a small incised wound directly over the course of the common femoral. The bleeding from the wound, however, had ceased under the application of moderate pressure, and it seemed expedient to leave it to take its own course. Within a few days, however, the patient was suddenly seized with very active hemorrhage from the wound, which necessitated immediate opening and ligation of the vessel. The latter was found to be severed across the main trunk. The vein was also injured, and both vessels were tied. On account of infection in the wound there occurred within a few days a secondary hemorrhage of severe character. This was found on operation to come from the common femoral and it, in turn, was tied. Again, within a few days, a secondary hemorrhage appeared. On this occasion it was found that a tight tourniquet around the hip did not suffice to control the hemorrhage, and the operator was obliged to decide on common iliac ligation. This was done by Crampton's method, whose incision, it will be remembered, begins at the anterior extremity of the last rib, proceeds downward directly to the ilium, follows the line of the crest, and terminates at the anterior superior spine. This incision is carried to the peritoneum, which is reflected in the usual manner. Again there was suppuration, the original focus having been of very violent character, and it was two months and a half before the wounds were entirely healed. This case is probably unique, because it demonstrates that very extensive obliteration of the lower extremity may be brought about without a fatal termination. It further shows, for this man returned to his work as railroad porter and was able to execute it without the slightest inconvenience, that

such obliteration may be practised without necessarily incapacitating the individual.

The Early Diagnosis and Radical Cure of Carcinoma of the Prostate.—H. H. YOUNG (*Bull. of the Johns Hopkins Hosp.*, October, 1905), after a review of ten cases of carcinoma of the prostate operated upon by author, gives a clinical and pathological study of 40 cases of cancer of the prostate, taken from the records of the Johns Hopkins Hospital and from the records of his private cases. He states that the question of cure depends upon early diagnosis. This is often difficult on account of the absence of characteristic symptoms and signs. When severe pain and hematuria are associated with a very hard prostate, with upward prolongation of the induration into the region of the seminal vesicles on each side, the nature of the disease is evident at once. When, however, the symptoms are those of ordinary hypertrophy, and the seminal vesicles and the vesicular region feel normal, the diagnosis is often difficult. After a careful review of these cases I now feel that a markedly indurated prostate producing obstruction in a man over fifty years of age should be viewed with suspicion. If it is of stony hardness it is very apt to be cancerous, especially if the cystoscope shows little or no enlargement intravesically as in the ordinary hypertrophy. In such cases I proceed to expose the posterior surface of the prostate as in the ordinary prostatectomy operations, palpate the prostate directly, and if I find the posterior capsule more adherent to the rectum, the tissues more hemorrhagic and the consistency of the prostate much more indurated than in simple hypertrophy, I am able generally to make the diagnosis of carcinoma without cutting into it, and proceed at once with the radical operation. In a recent case after exposing the prostate I was still uncertain as to malignancy and therefore made a longitudinal incision into the prostate on each side of the urethra as if for the usual prostatic enucleation, and then excised a slice of the lateral lobe parallel to the cut. Microscopic examination showed a definite adenocarcinoma invading the intraglandular stroma. When the presence of cancer is demonstrated the capsular incisions are to be closed at once and the radical operation carried out. The following conclusions may be drawn from this study of 40 cases. Carcinoma of the prostate is more frequent than is usually supposed, occurring in about 10 per cent. of the cases of prostatic enlargement, as shown also by Albarran. It may begin as an isolated nodule in an otherwise benign hypertrophy or a prostatic enlargement which has for many years furnished the symptoms, and signs of benign hypertrophy may suddenly become evidently malignant. Marked induration, if only an intralobar nodule in one or both lobes of the prostate in men past fifty years of age should be viewed with suspicion, especially if the cystoscope shows little intravesicular prostatic outgrowth, and pain and tenderness are present. The posterior surface of the prostate should be exposed as for an ordinary prostatectomy, and if the operator is unable to make a positive diagnosis of malignancy, longitudinal incisions should be made on each side of the urethra (as in prostatectomy) and a piece of tissue excised for frozen sections, which can be prepared in about six minutes and examined by the operator at once. If the disease is malignant the incisions may be cauterized and closed and the radical operation performed. Cancer of the prostate remains for a long time within the confines of the lobes, the urethra, bladder and especially the posterior capsule of the prostate resting inviolate for a considerable period. Extraprostatic invasion nearly always occurs first along the ejaculatory ducts into the space immediately

above the prostate between the seminal vesicles and the bladder and beneath the fascia of Denonvilliers. Thence the disease gradually invades the inferior surface of the trigone and the lymphatics leaving to the lateral walls of the pelvis, but involvement of the pelvic glands occurs late, and often the disease metastasises into the osseous system without first invading the glands. Cure can be expected only by radical measures and the routine removal of the seminal vesicles, vasa deferentia and most of the vesical trigone with the entire prostate as carried out in four cases by the writer, and is shown to be necessary by the 40 cases, including eight autopsies and ten operations, reported in the article. The four cases in which the radical operation was done demonstrated its simplicity, effectiveness and the remarkably satisfactory functional results furnished.

Surgical Treatment of Intraspinal Tumors.—In a review of this subject, RICHARD H. HARTE states (*Annals of Surg.*, October, 1905) that out of 92 operations for spinal tumors 43 patients died, a mortality of 47 per cent. If, however, the deaths which ensued some weeks or months after the operation are omitted, the mortality is reduced to 28 per cent. The death-rate should not deter operative interference, since beneficial results are so marked. The nature of the tumor, as recorded in 88 of the reported cases, was, sarcoma, 37; adhesions, 11; echinococcus, 8; fibroma, 6; syringomyelia, 5; endothelioma, 4; psammoma, 3; cyst, 3; fibromyxoma, 2; osteoma, 2; and one each of tumor of vertebra, myeloma, lipoma, lymphangioma, primary carcinoma, secondary carcinoma and dermoid cyst. Of the 49 patients who survived the operation 59 per cent. were cured; 34 per cent. were improved, and 6 per cent. were unimproved. With very few exceptions, it is impossible to determine the nature of the tumor before operation. Gummata may nearly always be excluded, and besides are rare in the spinal canal. Sarcoma can only be diagnosed with certainty when it is clearly secondary. Usually it is stated that extradural tumors are more frequent and much less fatal than intradural growths. In the cases of this series in which the situation with regard to the dura was mentioned 50 were extradural and 36 intradural; however, the mortality in extradural cases was 50 per cent. and in intradural cases 47.21 per cent. Possibly this is due to the fact that sarcomata are more frequently extradural than intradural, and that they are more apt, when intradural, to be circumscribed or encapsulated. Practically it is impossible to diagnose between intra- and extramedullary growths. In females the mortality of operation has been only 45 per cent. against 57 per cent. in males, but it is to be noted that sarcomata have been found one-third oftener in the latter. Of 82 cases in which the region of the spine affected is given, the upper dorsal was involved in 33; the lower dorsal, in 24; the lumbosacral, in 14; and the cervical, in 11. The cause of death is given in 28 cases. One-half of these were due to shock and hemorrhage, or to infection and meningitis. Eight patients died from exhaustion, three from recurrence of tumor, two from hypostatic pneumonia, and one from bed-sores and sepsis. The method of opening the canal advised is to cut down directly upon the spines, clear the laminae, cut off two or three spines, if in the dorsal region where they overlap; then bite through the laminae, next the pedicles, with large knife-bladed forceps. A crown trephine may be used instead, enlarging the opening so made with rongeur forceps. Hemorrhage is controlled by gauze packing. The canal is then explored, and if nothing is found, the dura is carefully opened with a knife not hitherto used during the operation, after the manner of opening the peritoneal cavity,

and the search continued. If the dura has been opened, it should be sutured, if at all very loosely, since patients do better with free escape of cerebrospinal fluid. All cases should be closed with drainage, the gauze to be removed on the fourth or fifth day, or as soon as the patient is able to bear the necessary disturbance.

Suture of the Spinal Cord.—GEO. R. FOWLER reports the following interesting case (*Annal. of Surg.*, October, 1905) the salient points of which are as follows: The patient, a male, aged eighteen years, suffered a gunshot wound of the back, bullet .38 caliber, one and one-fourth inches to the right of the median line and on a level between the tenth and eleventh dorsal spines. The immediate symptoms were severe shock, complete paralysis below the waist, loss of sensation below the level of one inch above the iliac crests on the sides and midway between the umbilicus and symphysis in front, followed by incontinence of feces, and twitching of the muscles of both legs, especially the toes. Ten days later a laminectomy of the tenth, eleventh and twelfth dorsal vertebrae was performed and the bullet found lying transversely between the severed ends of the cord. The ends of the cord were then sutured with fine chromicized catgut, including a narrow strip of dura which had remained intact. Three weeks later the anesthetic area was found from one and one-half to three inches lower than before operation. Twitching of the toes and occasional clonic spasms of the flexors and extensors of the thigh occur; no control of bladder or rectum, but sensation of distention of either present. Cremaster and patella reflexes and ankle clonus absent, but Achilles jerk and Babinski's reflex present on both sides. A month later bed-sores developed over sacrum and heels. Five months later cystitis occurred, and two months after this the patient suffered an attack of lobar pneumonia. About a year after the operation the bladder and rectal sensation was greatly improved, and this continued to improve during the following year. Both legs were spastic and quite useless for locomotion. The line of anesthesia was found to cross the body about one and one-half inches above the pubes in front, and in the back by a curved line one-half inch below the iliac crests. Above this there is a zone of hyperesthesia about two inches in width. Slight atrophy of both legs, probably from disuse, and a somewhat dry and scaly skin, represented the trophic changes. An examination six months later revealed practically the same symptoms, save the anesthesia extended no higher in front than the pubes. The points of this case are of interest in that they relate to the possibility of regeneration of the spinal cord following a destructive lesion.

The Cause and Treatment of Perineal Abscess and of Peri-urethral Suppuration Above the Triangular Ligament.—The term "perineal abscess" has not an exact significance, asserts SAMUEL ALEXANDER (*Med. Rec.*, October 28, 1905), but includes the conditions described as periurethral abscess, urinary abscess, infiltration and extravasation of urine, suppurative cowperitis, and periprostatic abscess. The infection is always from the urethra, and may occur in three ways: (1) Through the glands of the bulb, the glands of Cowper, or Littre's glands, or the prostate, and from these extends into the perineal tissues; (2) through small fissures in the mucous membrane of the urethra; and (3) as the result of mechanical rupture of urethra from external or internal violence. Infiltration of urine occurs and plays a prominent part in the infection of some cases, but often it is absent, and thus is not an essential causative factor. Stricture of the urethra may or may not be present. In the treatment of this condition it is a waste

of time to employ measures other than operative. It is necessary to open and drain the perineal abscess, and also to open the membranous urethra, and to drain foci of suppuration above the triangular ligament.

Morphine-Scopolamine Narcosis.—H. NORRIS (*Univ. of Pa. Med. Bull.*, October, 1905) comes to the following conclusions concerning the use of morphine and scopolamine in general narcosis: The disadvantages to the use of scopolamine are that complete muscular relaxation is not secured, and that, therefore, it should not be the anesthetic of choice in laparotomies or delicate operations, where the patient, in the event of making a movement, would seriously hinder the surgeon. Also in its present status, like all other new things, it must be used with discrimination and in proper amounts, for while no deaths have been attributed to its use, should some fatalities occur, immediately there would be a wave of adverse criticism. Its advantages, on the other hand, are numerous. The patient is saved the fear of nitrous oxide gas, ether or chloroform, the preliminary struggling of anesthetization, the postoperative retching, vomiting, thirst and "ether-back" and much of the pain. There is no risk of ether being dropped into the eyes, the mouth-gag applied or the tongue forceps used. Retention of urine does not occur, and peristalsis is not interfered with. Last comes the question of expense, sufficient morphine and scopolamine for an ordinary operation costing roughly about two cents against ether at 25 cents per 100 grams. In patients with pulmonary tuberculosis it would seem to be far preferable to ether and in military surgery this form of anesthesia should have a very general use.

THERAPEUTICS.

Freedom from Uric Acid.—Under the above title ALEXANDER HAIG (*Med. Rec.*, August 26, 1905) returns to his antiquated notions and advocates a plan of life in which an equilibrium between the formation and excretion of uric acid is maintained in the human body. The rationale of the plan suggested depends upon keeping the blood normally alkaline. The evils consequent to uric acid retention are gout in the winter months, and subsequently, in the spring, depression, anemia, lethargy, and debility due to the resolution and clearing out of that which has been stored. Underfeeding as a means of diminishing this metabolic product is not advised, but rather a method of living which will result in the elimination of that normally formed. To clothe warmly and to live in warm rooms is a prime factor. Though fresh air is essential, it should not be gained at the expense of exposure to cold, since this will do more harm by retarding uric acid elimination than can be possibly gained through the small increase in oxygen thus obtained. For the same reason the morning cold bath, tonics and changes to invigorating climates are not considered ultimately beneficial. In regard to food, potatoes and other alkaline vegetables should be consumed in abundance, whereas fruits should not be eaten out of season and sparingly at any time except in very warm weather. Also it is advised to secure a proper distribution between bodily and mental exertion.

Food Factor in Uricemia.—The self-curative influence of arthritic pyrexia upon gouty arthritis by means of increased combustion and the subsequent freedom from all the so-called gouty symptoms leads FRANCIS HARE to assume (*Med. Rec.*, September 2, 1905) that all these abnormal systemic manifestations depend upon hyperpyrexia, the fundamental factor of uricemia. This view explains also the natural clinical history of chronic articular gout. In this condition, there being practically no pyrexia, the hyperpyrexia will remain unrelieved,

the uricemia will persist, and the articular uratic deposits will not only not undergo reabsorption, but will tend to increase progressively. Thus chronic articular gout tends to progressive deterioration, constitutional and local. The weak point in the hyperpyremic theory of gout is the hitherto unsupported assumption that the structurally and functionally normal kidney finds it difficult to extract uric acid from overcarbonized blood. It may be admitted at once that no explanation of this disability can be offered, but it can be shown by independent evidence, not only that hyperpyremia and the dispersion of hyperpyremia involve uricemia and the dispersion of uricemia respectively, but also that the elimination of uric acid from the blood depends inversely upon the degree of pyremia. Normally daily pyremic fluctuations occur, and it has been argued that throughout the twenty-four hours there is a tendency to inverse fluctuation between pyremia and the rate of combustion. On the view that the menstrual flow constitutes one form of carbonaceous expenditure, there is probably a normal tendency to hyperpyremia just before and at the onset of menstruation, a dispersion of this tendency thereafter. Physical exercise greatly increases the rate of combustion; it tends, therefore, to disperse hyperpyremia and to reduce pyremia, the output of uric acid being markedly increased. It is important to note that the increase of uric acid excretion which follows exercise is merely temporary. Like physical exercise, pyrexia tends to disperse hyperpyremia and to reduce pyremia through increase of combustion, but in most cases pyrexia operates to the same end through decrease in the carbonaceous income from anorexia and impaired digestive power. And again, it is essential to know that the increase of uric acid excretion following the onset of fever is merely temporary. It is fair to conclude that this increase of uric acid excretion represents the releasement of a prior retention in the blood; that during the continuance of most pyrexias, uricemia is precluded; but that during convalescence, when the exaggerated combustion has ceased, possibly to be replaced by a reactionary retardation of combustion, and when the carbonaceous income from the alimentary canal is again rising, then uricemia from deficient renal excretion once more becomes possible. Plumbism conduces to hyperpyremia through impaired decarbonization, catabolic and anabolic, and is almost always associated with uricemia and diminished excretions of uric acid. The explanation of lessened pyremia in paroxysmal neuroses is through the increase of physical exercise. But migraine acts through interruption of the carbonaceous income, from anorexia and cessation of digestion and absorption. Uric acid formation depends upon the disintegration in the tissues of nucleoproteids, endogenous, and of purin substances taken with food, exogenous. It seems, therefore, that uric acid excretion depends directly upon the introduction of uric acid-forming material, and inversely upon the degree of pyremia. The argument for the twofold causation of uricemia and uric acid excretion seems conclusively shown by the facts that in the gouty the rise in uric acid excretion after the ingestion of purin substances appears to be very much delayed, and that during starvation the excretion after the thirteenth hour is almost constant.

The Treatment of Non-Malignant Strictures of the Rectum.—HOWARD A. KELLY, M.D. (*Am. Med.*, September 16, 1905), says that painstaking prophylaxis should guide us in the treatment of rectal strictures situated in the distal portion of the bowel. Careful investigation should be made in all cases of so-called diarrhea and dysentery. The treatments consist in rest,

diet, keeping the upper bowel emptied, cleansing solutions and applications, healing applications and packs. A stricture of moderate caliber may be cured by dilatation with bougies; by the elastic pressure of a rubber bag, distended by air and made to distend in a uniform manner by a silk covering (Sweetnam's plan); and by digital distention and massage. If a contracting bowel is watched and treated, the patient may go on for a long time, for years, even, in great comfort, though the disease is not cured. Resection of the bowel may be practised even when the disease extends over an area as long as 20 cm. A posterior incision with the removal of the coccyx, and sometimes of the last sacral vertebrae, with the preservation of the anal sphincters and amnula when possible, and an end-to-end anastomosis of the bowel, is the best procedure. It is sometimes worth while in the attempt to save the bowel when the local process persists in advancing, to make an artificial anus completely diverting the fecal current. The bowel may then heal and the extensive surrounding inflammation undergo resolution, when after some months or a year or more, and generally after a successful resection, the artificial anus may be closed. In a high grade of tuberculous or syphilitic stricture, when an extensive area is involved, it is often best to make an artificial anus and extirpate the diseased bowel. Dr. Kelly prefers to do this by amputating the bowel above the first, and ligating such hemorrhoidal vessels of the lower end as are within reach, and then to complete the extirpation from below by an incision from sacrum to anus. Advanced tuberculosis always demands extirpation, and syphilis calls, of course, for persistent specific treatments.

PRESCRIPTION HINTS.

Gastric Flatulence.—The medical treatment consists in antiseptics, absorbent powders, laxatives.

℞ Peroxide of magnesium 6 grs.

For one wafer to be taken half an hour before meals.

After the repast:

℞ Prepared chalk 15 grs.

Bicarbonate of soda 8 grs.

Calcined magnesia 8 grs.

For one powder; to be taken in water or aniseed tea.

In case of pain or burning in the stomach, opium and belladonna might be associated to the powders:

℞ Prepared chalk S.N. of bismuth 15 grs.

Calcined magnesia 12 grs.

Powdered opium $\frac{1}{8}$ gr.

Powdered belladonna $\frac{1}{2}$ gr.

Treatment of Ozena.—The treatment of this troublesome affection has taxed the patience and energies of many practitioners. Numerous are the remedies recommended for it—irrigation of the nose, with solutions of chlorate of potash, boric acid, hermophenyl, oxygen water (3 vol.), etc., followed by a variety of powders given in the form of snuff and general treatment. Dr. Lubet says the treatment of ozena is much more simple and should have for principal object the removal of all crusts from the mucous membrane, as where there are no crusts there is no odor. His idea is to stimulate the nasal secretion so that the crusts become detached of their own accord. To obtain that end, he recommends the aspiration through the nose several times a day of a strong boric acid ointment:

℞ Boric acid 4 drams

Menthol 6 drams

White vaseline $1\frac{1}{2}$ oz.

The boric acid excites the secretion of the membrane, detaching the crusts, and when the patient blows the nose with a certain force they are expelled.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor.
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, Including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

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LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, NOVEMBER 25, 1905.

THE MODERN MINOTAUR.

HERBERT SPENCER, in the introduction to his essay on Education, states that "we that have but span-long lives" must ever bear in mind our limited time for acquisition, and must settle which things it most concerns us to know. In his classification of the relative values of what Bacon calls "knowledge," Spencer places the training which ministers to self-preservation and to the rearing and discipline of offspring before that which is devoted to the gratification of taste and feelings.

We interpret this to mean that a knowledge of the laws of health is more fundamental than a knowledge of art, literature or music, and an appreciation of scientific methods of controlling and preventing disease is more imperative than a knowledge of historical events or abstract sciences; but our general method of education does not bear out an appreciation of these relative values.

The knowledge of the masses concerning hygiene, living and the spread of infectious diseases has been confined thus far almost entirely to what has been taught them by the family physician, or has come to them through contact with the officials of Health Boards. The efficacy of the latter methods is seen in New York in the

fact that in the last ten years it has, by its various phases of work, reduced the tuberculosis death-rate more than twenty per cent.

The proposed Tuberculosis Exhibition, under the auspices of the National Association for the Study and Prevention of Tuberculosis, which will be held during the next two weeks at the Museum of Natural History, will mark an epoch in the education of the city in this disease. The effects of the conference of physicians and the public lecturers will spread to many cities, and the traveling exhibits which are planned will doubtless be in demand in smaller towns.

But this carefully concerted educational movement will have but temporary effect, unless the scientific men and the citizens of New York unite in making the exhibition and the lessons to be derived from it permanent. What the Board of Health has done painfully by law, can be done a hundred times more thoroughly through the co-operation of an educated public. And for such education there is nothing so valuable as convincing exhibits. There is no place so fitting for a permanent exhibit of the outdoor living places, and the window-lighted rooms of the tenements, as well as all details pertaining to the care of tuberculosis, as the Museum of Natural History of New York.

During the last few years very marvelous exhibits have been established in Europe. Some of these were brought to the World's Fair at St. Louis. They included models showing every form of skin disease, as well as bacterial growths. It would be possible for New York to establish in her museum, which has thus far outrivaled all its old competitors in the lines already developed, an exhibition of the Natural History of the Diseases of Man, beginning with the more serious contagious diseases, such as tuberculosis, malaria, yellow fever, and smallpox, and illustrating by means of set figure pieces the typical aspect of the patient, and the kind of surroundings in which he should be nursed.

The visitors to the Museum to-day are divided into two classes, viz., those who bring in knowledge with them, but who take away strong impressions, and those that come with some information, seeking for more. The former flit from case to case where the birds with their young appear to be living in their natural habitat, with their proper food and their very footprints reproduced in detail. The latter extend their observations to the exhaustive collections in the side cases.

the more scientific demonstrations would be of vast benefit to intelligent members of the community, to medical students, nurses and settlement workers.

The plans for the Natural History Museum are sufficiently ample, and the wealthy men of New York are sufficiently generous to make a department of natural science in the museum that would be an educative force sufficiently strong to carry its effects through the whole country. Such an exhibition of the life history and hygienic treatment of disease would comply with Spencer's requisite that education should give first that training which ministers to self-preservation before that which leads to accomplishments.

During the present Tuberculosis Exhibition every physician should urge the members of his clientele to attend some of the public lectures and see the exhibit. As in the days of fables the people of the city crowded out to see Theseus slay the monster that demanded a hundred of their fairest youths and maidens, so should we be no less interested in what is perhaps the most striking feature of medicine that the century will see, the systematic education of the masses in the care of the nation's health.

PREMATURE DEATH IN THE MOSQUITO.

FAIR Science may not have frowned on the humble birth of the mosquito theory, in connection with the etiology of yellow fever, but most certainly melancholy will never mark it for her own, if the United States officials persist in that super-redundancy of speech, that is popularly ascribed to the poll parrot. Now it is a wise and safe rule, and one of the practical maxims of modern politics, not only not to talk too much, but to let well enough alone. And that is just where our professional sanitarians have erred. Good wine needs no bush, and it is much better, like Brer Rabbit, to lay low and say nothing,

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all that was necessary to stamp out an epidemic of it would be the extermination of the particular variety of insect that caused and disseminated it? All this was easy sailing, but the perturbed spirit did not rest here, but went on to inquire, "if this was true, how did the first victim of yellow fever get his load?" This query was disposed of by a high and mighty official by telling him "not to ask silly questions."

Now, "silly" or not "silly," this one question has been the stumbling block, in argument at least, ever since the theory first came up. It has never been clearly and satisfactorily answered, and has been relegated to the riddles of the Sphinx in company with "Who killed Cock Robin?" "Who struck Billy Patterson?" and "How old was Ann?" It is, in fact, impossible

to have a hypothesis, like Oliver Wendell Holmes' "One-hoss Shay," that has not always "somewheres a weakest spot," otherwise it would become a fact, and cease to be a hypothesis. But this mosquito problem has practically been solved, for after the experiments at Havana, the most skeptical minds in the medical profession have become convinced of its truth, and such being the case, it is a pity to weaken the faith of the multitude by reports that are not only untrue, but which are ludicrous.

For after all, it is to the masses at large that the advocates of any measure requiring governmental appropriations must look. They make the man, and the man makes the money, and if a Representative in Congress finds out that his constituents do not care for the advancement and support of any pending measure, he is hardly likely to vote for the old flag and an appropriation, or to see that any of the public funds are expended in its behalf.

As we have already said, the epidemic in New Orleans began in May and continued to October 24, when an official proclamation announced the death of every *Stegomyia* in the city and suburbs, and rang the death knell of them all, thus assuring the end of the epidemic of yellow fever, and the impossibility of any farther infection. Now, by a curious and interesting coincidence, this was settled just in time to fit in with President Roosevelt's visit to New Orleans. "In all human probability," says the *Washington Post*, "he would have gone there just the same." They did not, however, know that for certain, so they exterminated the mosquito, and therefore stamped out yellow fever, on the very day before that fixed for his arrival, which made everything pleasant, friendly and logical.

All this was simple, in fact, it was as easily arranged as the announced death of Nanki Poo in the last act of the "Mikado," but unfortunately yellow fever has appeared at Havana, and as that place was also reported as being free from the baneful mosquito, it became necessary to account for the resurrection of the *Stegomyia*. And in order to do this, they promptly imported a lot of fine, husky, infected insects from *New Orleans*—importing them in boxes of electrical machinery, revived and tucked away for a nice little trip to Havana.

Luckily the epidemic there is, thus far, but a light one, but the days of the resurrection of the dead have faded into the dim past, and it is a

shame to now cast either doubt or ridicule on established facts by an effort to induce a well-educated, thinking community to believe that all things are not what they seem. The *Post's* summing up was short but pithy:

"President due at New Orleans—October 25.

"*Stegomyias* killed by proclamation—October 24.

"Yellow fever appeared at Havana—shortly after.

"Cause—Mosquitos imported from New Orleans.

"Therefore let us enjoy ourselves in a spirit of true gratitude to that inscrutable Providence that has equipped us with a sense of humor."

PROGRESS IN THE DIAGNOSIS OF RENAL DISEASE.

THE desire to make use of positive findings in cases of obscure genito-urinary disease, although still somewhat confined to a small body of specialists, is not by any means a new one. From recent developments it would appear that the opportunity to make positive conclusions will, ere long, be given to the general surgeon or even to the general practitioner. If so, this will be due to the recent improvements in instruments required for physical examination of the parts and to a simplification of the technic.

A review of the history of the efforts made in these directions cannot fail to be of interest.

So long ago as 1874, Tuchmann, a German physician practising in London, as recorded by Frank T. Vale (*Annals of Surgery*, January, 1905), had the foresight to emphasize the value of urinary segregation. Thirty-one years have elapsed since the publication of his memoir and hosts of observers have followed in his footsteps, yet how discouragingly small an effect has actually been made by the efforts of these progressive men on the general attitude of the profession! Until very recently, at least, the general tendency has been one of "laissez faire."

Tuchmann employed a short right angle lithotrite, between the blades of which he compressed one ureteral orifice, the urine collecting in the bladder during the period of compression representing the secretion from the other organ. It is true that the method was crude and of questionable merit and certainty, for it was determined entirely by tactile sensation, nevertheless it was the first ray of light cast upon an absolutely dark subject.

Gustav Simon, a few months later, took exception to Tuchmann's method and demonstrated that it was possible to catheterize the ureter. Thus it happened that at the very beginning of a scientifically accurate study of the urines, the two rival methods of segregation and catheterization were started side by side. It is surprising, when one considers the immeasurable benefits which these two methods are capable of bestowing upon persons afflicted with a vast number of renal lesions, that for so long a time they should have been allowed to drag along without the attention being paid to them which their importance would seem to justify.

Grünfeld, it is said, was the first to catheterize the ureter by the aid of direct vision. He filled the bladder with water and employed straight, short endoscopic tubes with a glass window at the distal extremities. He described the technic minutely, and thus anticipated Kelly's classic work by nearly twenty years. Newmann, in a monograph submitted to the University of Glasgow in 1883, claims to have been the first to introduce into the bladder a small electric light. Silbermann, recognizing that ureteral catheterization was a very difficult technic, always to be confined to the hands of a few, modified Tuchmann's instrument for compressing the ureteral orifice. He concealed in a small catheter a rubber balloon, which was made to protrude when within the bladder by filling it with mercury. This reminds one somewhat of Parker Sym's rubber mushroom retractor for perineal prostatectomy. The weight of the mercury compressed the ureteral orifice, but the instrument was confessedly inaccurate.

Weir, in 1883, when discussing the use of Davy's level to control hemorrhage, before the New York Practitioners' Society, called attention to the fact that the ureters were within the area pressed upon by the lever, and suggested that it might be used to determine the comparative condition of the two kidneys in place of the hand, which Sands had employed in at least one case. The perfection of the technic of ureteral catheterization by Kelly, in 1892, in this country, and by Albarran, in 1897, in France, had, until recently, all but led to the entire abandonment of other forms of urinary separation. In 1890 Lambotte described the first instrument for partitioning the bladder. It was ingenious but not entirely reliable. Neumann's instrument consisted of a double catheter provided with a me-

dian ridge which formed the septum between the ureteral orifices. Harris, later, devised a separator which is very widely and favorably known, but which is complicated and not always absolutely reliable.

Four years ago Luys, of the Lariboisiere Hospital, stimulated by the remarkable possibilities suggested by the Harris instrument, devised one of a different type, which apparently has done much to further the claims of segregation versus catheterization. Hartmann reports over 400 applications of the instrument in two hundred males and females without accidents and with perfect results.

It is obviously unnecessary to create an instrument which shall be water-tight on the ventral surfaces of the bladder—all essential being to depress the organ between the ureteral orifices. This creates a pocket on either side which is entirely distinct and in which the separate secretion from each kidney will collect. Luys observed that the angles of the trigone have a fixed relation to each other quite independent of the dimensions of the bladder itself. The distance between the ureteral orifices varies between twenty and thirty millimetres, while that from the urethra to the base of the triangle, equally constant, varies between twenty-five and thirty millimetres. The Luys instrument of latest model is peculiar in that the Escat curve has been substituted for the Guyon. Before introducing it, the bladder is first thoroughly washed out with boric acid solution. A diuretic may or may not be given beforehand. The rectum should be emptied. So unattended with difficulty, both for the operator and the patient is the introduction and the use of this instrument, that a general anesthetic is said never to be required. On account of the character of the curve, it is wise to sit the patient up at the termination of the introduction into the bladder. Slight traction and elevation of the handle, followed by a rectal examination, to show that the instrument is centrally located, suffice to give positive results.

It does not seem improbable, if the claims of its inventor are true, that this instrument will ere long form a satisfactory part of the outfit of every progressive general practitioner of medicine.

Urinary segregation is, however, by no means the only important diagnostic measure in genito-urinary disease. Walter Klotz, in a paper read

before the Surgical Section of the New York Academy of Medicine, December, 1904, recited the history of twelve ureteral meatoscopies which he had made in connection with his private work and with Brewer's service at Roosevelt. The significance and value for differential purposes of a proper interpretation of the meatoscopic findings has at least as high a value as the information afforded by the findings of a segregator. Meatoscopy seems to be of particular value in the diagnosis of renal or ureteral tuberculosis.

The X-ray, even in the case of uric-acid stones, has become in the hands of such men as Cole, Leonard and others, virtually an infallible agent in the diagnosis of renal and ureteral stones. At a recent meeting of the Academy, Tilden Brown and George Brewer spoke of interesting methods for excluding the pseudo shadows which have in the past occasionally given rise to errors in diagnosis. Brewer reported one that had been cast positively by the calcified tip of an epiploic appendix, while Brown and others argued that the shadows were occasionally due to sesamoid bones occurring in the tendons of the obturator muscles.

All this activity can end in but one manner. Within a very short time the diagnosis of genito-urinary disease will have been raised from an empirical art of questionable certainty to a science of almost infallible accuracy.

ECHOES AND NEWS.

NEW YORK.

New York Section of the Council of Jewish Women.—This society cordially invites the profession to attend a mass meeting in support of pure food Saturday evening, December 2, 1905, at 8 P.M., at Mendelssohn Hall, 113 West Fortieth Street, New York City. Speakers: United States Senator W. B. Hepburn, P. J. McCumber; Dr. Harvey W. Wiley, Chief of Bureau of Chemistry, Department of Agriculture, and other prominent speakers.

Dr. Palmer Dudley.—At a meeting of the New York Obstetrical Society, held October 10, 1905, the president appointed a committee to draw up a suitable testimonial in memory of our late associate, Dr. Augustus Palmer Dudley, who died July 5, 1905. This committee wishes to express the great sense of loss felt by the entire society upon the announcement of his demise, inasmuch as Dr. Dudley was always a congenial companion, of loyal nature and with a high ideal of friendship. His natural abilities contributed not a little to enliven the scientific discussions of our society, and his contributions to the literature of our specialties were always read with gratification and profit. His appointment to several hospitals and to professorships in two medical colleges attest a skill of high order as a surgeon and

marked proficiency as a teacher. The committee recommends that a copy of this testimonial be spread upon the minutes of this society and other copies be sent to the medical journals and to Dr. Dudley's family, with the expression of deep sympathy from the members of this society for their bereavement. Bache McE. Emmet, George H. Mallett, James N. West, *Committee.*

American Tuberculosis Exhibition.—The American Tuberculosis Exhibition, which is being planned under the joint auspices of the National Association for the Study and Prevention of Tuberculosis and the Committee on the Prevention of Tuberculosis of the Charity Organization Society of New York City will open on November 27 and close on December 9. In arranging the exhibition the Committee on Arrangements laid its chief stress on a popular presentation of the facts of the situation and the approved methods of prevention and cure. Charts and tables of all sorts will show the public the conditions which confront it, and by means of photographs, plans, models and apparatus the recognized measures which have been taken to cure the disease will be presented in graphic form. The cooperation from sanatoria of standing in the United States and Canada has been particularly cordial and both public and private institutions from all parts of the country will be elaborately represented. A representative collection of material from the recent Exposition in Paris has also been secured and will doubtless form one of the most attractive features of the New York Exhibition. Naturally, the various devices and mechanical appliances which are now used in the treatment of this disease will be shown and the models of the various forms of tents and buildings for the open-air treatment will be given a prominent place. A series of public meetings has been arranged, all of which will be held at the Museum during the time of the Exhibition. On the opening night the principal address will be given by Mr. Talcott Williams, of Philadelphia, while brief addresses will also be made by Mayor McClellan, of New York, by Dr. Darlington, Commissioner of Health, and by President Jesup, of the Museum.

On Wednesday evening, November 29, a special meeting, devoted to tuberculosis and the trades, will be held, at which the principal address will be by Mr. Graham Taylor, of Chicago, with short addresses by President Gompers, of the American Federation of Labor, and other well-known representatives of organized labor.

On Friday evening, December 1, a special meeting for physicians has been called, at which addresses will be made by Drs. Lawrence F. Flick, of Philadelphia; W. A. Evans, of Chicago; Dr. A. Jacobi, of New York; Vincent Y. Bowditch, of Boston, and others. Invitations to this meeting have been sent out widely, and it is expected that a large representation of the profession in New York and other parts of the country will be in attendance.

On Friday, December 8, a meeting for the teachers of the public schools has been arranged, the address on that occasion to be by Dr. S. A. Knopf, of New York. The Board of Education of the city has lent itself most cordially to the movement and is officially urging the teachers to attend the meeting as well as the Exhibition.

The effects of an undertaking on a scale such as this must inevitably be far-reaching. Already the Committee is in receipt of numerous requests from

other cities for the loan of the material, and it is hoped that the contributors will cooperate in the effort to provide for a series of similar exhibitions in other parts of the United States.

The National Association for the Study and Prevention of Tuberculosis is also endeavoring to form one or more traveling exhibits on a smaller scale, which may be packed in small compass and kept constantly on the move, being exhibited in towns and villages where it would be impossible to arrange for or finance a large exhibition.

The meeting for the medical profession on the evening of December 1, and the fact that a special call is being sent out to sanatorium physicians to meet on the afternoon of that day, will doubtless attract a large number of physicians to the Exhibition at that time. It may be added for the information of the medical members that a special exhibition of pathological material has been installed, the nucleus of which is formed by contributions from the Phipps Institute in Philadelphia, and the Laboratory at Saranac Lake.

PHILADELPHIA.

Fire Starts Patients.—As a result of the burning of a can of paraffin at the Bryn Mawr Hospital \$100 worth of damage was done. The alarm spread excitement among the patients, but they were soon pacified on learning that the flames were controlled by the employees of the institution.

Hospital Aid.—The twenty-sixth annual charity ball will be held at the Academy of Music, January 24, 1906. The proceeds will be divided between the University of Pennsylvania Hospital, the Jefferson Medical College Hospital, the Howard Hospital and the St. Timothy's Hospital. The German-American ball will be held February 5, 1906, the proceeds of which will be divided between the Children's Hospital, the Pennsylvania Epileptic Hospital and the Kensington Hospital.

American Society of Tropical Medicine.—This society held its public meeting Friday, November 17, 1905, at the Jefferson Medical College. The first paper by Dr. F. Cortright Wellman, Benguela, Angola, West Africa, on the "Study of Tropical Medicine," was read by the secretary of the society, Dr. Joseph McFarland. Dr. Claude A. Smith, of Atlanta, Georgia, read a paper on "Uncinariasis." His paper was illustrated by means of lantern slides, showing the changes induced in the skin by infecting patients with the eggs of the *Anchylostoma duodenale*.

The Philadelphia Pediatric Society.—This society held its regular meeting Tuesday, November 14, 1905. Dr. Eleanor C. Jones showed a case of "Atypical Hemiplegia." Drs. W. G. B. Harlan and T. H. Weisenburg presented a case of "Latent Hemiplegia in a Child of Eight Years, Made Evident by Etherization." Dr. J. H. W. Rhein showed a case of an infant of nine months with "Bell's Palsy." Dr. Hubley R. Owen (by invitation) exhibited a case of "Rickets with Marked Deformities of the Clavicles." Dr. C. Y. White showed card specimens of "Miliary Tuberculosis." Dr. C. H. Lefcowitch reported a "Case of Diabetic Purpura in a Boy Three Years Old." Drs. C. F. Judson and C. D. Camp (by invitation) made a final report on a "Case of Cerebellar Tumor with Post-mortem Findings." The case was shown to the society April, 1905.

Bequests.—The will of Miss Marie E. Brasier gives to the St. Joseph Hospital four houses at

Broad and Bedford streets, \$5,000 for a free bed in memory of Charles A. Brasier, and \$5,000 for a free bed in memory of Elizabeth P. Brasier. The Maternity Hospital and St. Vincent's Home will receive \$10,000; St. Mary's Hospital, \$3,000; the Children's Hospital (Homeopathic), \$300. The German and the Episcopal hospitals will each receive \$100 according to the will of Sue M. Remak. The will of Joseph E. Gillingham, of Clairemont, gives to the Pennsylvania Hospital \$50,000, and to the Veterinary Department of the University of Pennsylvania \$50,000, providing certain contemplated buildings are erected by the University at the time of the testator's decease or within three years thereafter. The same will gives to the Woman's Medical College \$5,000 to be used for founding and maintaining a scholarship; the Bryn Mawr Hospital \$5,000 for a free bed in the name of his wife; the Maternity Hospital, \$5,000; the Charity Hospital, Morristown, \$5,000. The Episcopal Hospital will receive \$5,000 to endow a bed according to the will of Nancy W. King.

CHICAGO.

The Nicholas Senn Club.—A club by this name has been incorporated in this city for scientific research by Drs. Fernand Henrotin, Byron Robinson, Orville W. MacKellar and Arthur McNeal.

A Medical Publishing Company Burnt Out.—A three-story brick building occupied in part by the *Alkaloidal Clinic*, at Ravenswood, Ill., with the presses and publishing equipment, was completely destroyed by fire last month. The loss sustained was \$200,000.

Crusade for Pure Food.—The Illinois Consumers' League will cooperate with the General Federation of Women's Clubs in a crusade for pure food. Accordingly a committee has been appointed to call the attention of the women of the State to the adulteration of food stuffs.

New Tuberculosis Camp.—A new tuberculosis camp is to be established near Blue Island, Ill., for the benefit of Chicagoans suffering with the disease. It is to be the gift of Mrs. Edward L. Gaylord, who has donated 160 acres of land to make the institution one of the most modern of the kind in the United States. Mrs. Gaylord will also provide the fund for the maintenance of the camp. The equipment of the institution will cost about \$5,000. Probably 25 patients will be taken care of at the beginning. The camp will be given over to the supervision of the Visiting Nurses' Association. The new institution will be opened in the spring, and will be conducted along the ideas of fresh-air living.

Dr. Senn Honored by the Profession.—A testimonial banquet was given to Dr. Nicholas Senn at the Auditorium Hotel, Chicago, Saturday evening, November 11, 1905. There was an attendance of 686, with representatives present from twenty States. Toastmaster Evans called the meeting to order and introduced Dr. Joseph D. Bryant, of New York, who presented Dr. Senn with the gold medallion. Among other things, Dr. Bryant said that along the pathway of medical endeavor for nearly a quarter of a century were noted enduring examples illustrative of his wise forethought and generous co-operation in the cause of advanced standing. Instances of his surgical technic foretold notable results that now proclaimed great surgical triumphs. The organization of military medicine, of no recent date, had yielded an abundant harvest because of his

early conceptions and continued earnest culture. The books written by him testified respectively to the bright sunshine of active life and the somber shadow of recollection. Human afflictions, which before his time yielded only to indomitable fate, now yielded to the outcome of the inspiration of his teaching and the handiwork of his technic. Long-deferred and defeated hopes were now revealed in the happy opportunities contributed by the saving graces of reparative wisdom and skill of which he had given the lion's share. As a humble servant of joyous friends, he presented to Dr. Senn in their behalf this beautiful symbol of the love and respect which they cherished for him, the likeness of a sterling man, embossed on pure gold and bearing the legend of true distinction. The next speaker was Dr. L. G. Nolte, Milwaukee, Wis., who presented a silver loving cup in behalf of Dr. Senn's former private students, and in so doing said: "As a token of love and affection, Dr. Senn, I present you with this cup, the emblem of love, and wish you a great many more years of usefulness, and trust that you may spend the afternoon of your life in good health. The toastmaster then introduced Dr. Senn, who said, among other things: "I accept from your hands, Dr. Bryant, this beautiful medallion, and assure you that I would rather accept it from your hands than from the hands of anyone I know of. I appreciate this tribute. I value it much more highly than I would a decoration by a royal hand. That means the judgment of one man; *this* is an expression of love, respect and good wishes of the noblest of all professions. There are two things in this world, Dr. Bryant, that have always an intrinsic value, one of which is labor, the other is gold. This medallion will be cherished and highly valued as a souvenir of this memorable gathering. It is to me an evidence that my labors, ardent as they may have been, have not been entirely in vain. I thank you, Dr. Bryant, for your presence and for your eloquent address. I wish also to thank Dr. Nolte as the spokesman of my old students, and wish to say to him that I may have been in the past a somewhat severe master; I may have seemed to my students unjust at times. But let me say to you I have never asked a student to do what I would not do myself."

Dr. Senn then read a poem, the text of which was taken from one of the most famous of the ancient philosophers—Seneca. The title of the poem was "For Life Is Short, and Art Is Long." In conclusion, Dr. Senn said: "Let me return my heartiest thanks, first, to the members of the Committee of Arrangements, and particularly to Dr. Evans. I thank all the gentlemen who have come from afar to bring me tributes from the profession. I thank the Swiss choir for their sweet songs, and I thank each and every one of you for your presence, your friendship, your respect and for your good wishes."

American Surgery.—The next speaker was Dr. William J. Mayo, of Rochester, Minn., who spoke to the toast "American Surgery." He said that when this subject was assigned to him he asked himself the question, Is there a surgeon in this country that was so typical and characteristic that it could be said to be "American Surgery?" That there had been such, there was no question, and that there was a time in which it did not exist was equally true. The time had now arrived when we could say there was an American surgery. Twenty years ago the surgery of the United

States of America was the surgery of the world, based on clinical observation and a most inadequate pathological foundation. The early contributions to surgery in America did not come entirely from the seacoast cities, but they came from this country as a whole. Bigelow, Mott, Morton, and many others from the seacoast, did most notable things; but it should be remembered that Sins, Battey and McDowell came from the South; and we had in Indianapolis Bobbs, who did the first operation on the gall-bladder; and Connors, who first removed the stomach in the Mississippi Valley. We had Wolcott, of Milwaukee, who first operated on the kidney; then we had Brainard and Gunn and Edmund Andrews, of Chicago. But twenty years ago we were behind in surgical pathology. Here and there men of European education came to this country and established spheres of influence for scientific work. The work of Fenger, of Chicago; Lange, of New York, and others, while to a certain extent local in character, was of incalculable benefit to the people of the entire country. The mass of the profession of this country twenty years ago were behind the Germans in pathology. Germany in scientific surgery had passed us by. The mass of the profession in this country did not know the position they occupied until Senn's *Principles of Surgery* was published. This book was popular. It had its effect in diffusing knowledge and surgery in this country became instantaneous. This book did more to teach the profession how little they knew and how much that was being accomplished than any one thing that had happened. Following this were notable contributions to surgical pathology by Roswell Park, published in the *Annals of Surgery*, by John Collins Warren, of Boston, and others. At about this time there also appeared the great book of Gerster. It taught the profession how to apply the new knowledge which Senn, Fenger and others had brought forth. There appeared at this time, too, a series of letters from abroad, published in the *Journal of the American Medical Association* and written by Senn, describing in clear-cut, forcible language the conditions as they actually existed in German clinics. These letters told the profession of America what German surgeons did, what they thought, and how they did it. Dr. Senn had written up the work of these men in such an absorbing and fascinating style that every man felt as though he himself had visited these clinics and had seen these men work. These letters were a stimulus for every medical student who desired to do surgery to go to Germany or be drawn there as by a magnet. Multitudes of American students went to Germany, so that there were more medical students in that country than in all the other foreign countries combined. American surgery was soon Germanized in the United States under the leadership of Dr. Senn. In America, more than in any other place, there was now taught what might be called living pathology. At a time when American surgery was relatively held in contempt, Senn, by a series of brilliant articles on practical subjects, such as pancreatic disease, branchial cysts, etc., made the surgeons of the world respect America. It was fitting, therefore, that the profession should acknowledge their indebtedness to this man, whose work had been an inspiration to ambitious Americans, and it was well to know that by hard work a reputation could be built up in the West that was durable, and for this and many things more the profession owed a lasting debt to Dr. Senn.

Colonel Harvey, U. S. Army, the next speaker, said the medical department of the army was greatly indebted to Dr. Senn for many valuable improvements

and suggestions. Therefore, he felt it was a privilege to be present to testify his appreciation of Dr. Senn, who had not only made substantial surgical contributions to the medical service of the army, but had extended many favors and rendered many kindnesses to the members of his corps.

American Medical Association.—Dr. Lewis S. McMurtry, Louisville, Ky., in responding to this toast, congratulated Dr. Senn that he was the recipient of such a magnificent ovation as had been tendered him. He said Dr. Senn did not belong to the profession of Chicago; he belonged to no section, to no locality, but to the profession of the entire country. Besides, he was an American. In the great advances that had been made in medicine and surgery during the past twenty years the most potent influences in this great advancement had been the medical societies and medical press. They had played an important part in the stimulation of original research, in the development of individuality, and in the diffusion of knowledge. The local medical societies had grown both in size and number; they had become great post-graduate schools from which no pupil ever graduated. The American Medical Association had a function almost exclusively its own among the medical organizations in this country, namely, to reach the great body of the profession, to federate into one great organized body through county, district and State societies the organization of the profession which would be in accord with the spirit of the age, as seen in every department of human endeavor, and to diffuse knowledge among the members of the profession by the publication of a great weekly medical journal, and to bring the profession into close touch, so that great work could be accomplished. It was the special purpose of this Association to reach after the country doctors, the village doctors, doctors in small towns, and bring them in close touch with one another. This association had within the past few years grown to be one of great power, and yet its work had scarcely begun. There were 130,000 physicians in the United States who needed to be brought into the district and county societies and within the influence of this great national organization. In this work there had been leaders, and among them the speaker mentioned the founder of the association—Dr. Nathan Smith Davis. Furthermore, through Dr. Senn's achievements his influence had been felt in the association for years. His contributions given to the Section on Surgery had been valuable. The association was the largest body of medical men in the world, and was destined to accomplish work along lines that would be more appreciated by the mass of the profession than any other medical society in existence.

The Medical Man Versus the Surgeon.—Dr. John A. Witherspoon, Nashville, Tenn., after brief reference to the late Spanish-American war, said that should the inevitable come and war threaten this country again, the boys of the fathers who wore the gray, as well as the boys of the fathers who wore the blue, would march side by side, and they would want no man as their surgeon more eagerly than Nicholas Senn. He was not only a great surgeon, but he had shown his patriotism. He was a good citizen. He was ever ready on any and all occasions to bare his face to the bayonet of any foe that might threaten this grand and glorious country. Therefore, the profession doubly owed him honor. If it were not so late he could bring to him many of the encomiums he had heard of him in the South, and lay them at his feet, with the statement that "We in the South, Dr. Senn, love you as dearly as do your Badgers of yore."

Dr. Charles Adams, Chicago, representing the Association of Military Surgeons, said that this organization had now many hundreds of members with one heart, and this beats for its founder, Dr. Nicholas Senn. He recounted Dr. Senn's contributions to military surgery, and the active part he had taken in the deliberations of that body.

Dr. Daniel R. Brower, Chicago, spoke of Dr. Senn as a traveling companion, and of the trip he took with him around the world around Siberia. He referred to Dr. Senn's international reputation as a surgeon, and to the manner in which he was royally and hospitably entertained by distinguished surgeons and physicians in the various cities they visited *en route*. Dr. Senn proved himself to be a very agreeable and delightful companion, and their trip was one triumphal march.

American Medical Literature.—Dr. Charles A. L. Reed, Cincinnati, Ohio, in responding to this toast, said that Dr. Senn had contributed largely and liberally to the value and quality of the great mass of surgical literature. American medical literature had its birth in a very unpretentious publication in the city of Boston some 218 years ago, when Dr. John Fletcher published a small brochure directing the people how to avoid contamination by smallpox. From that little article of about four thousand words had grown a mass of literature which perhaps would make a pyramid of great pretensions if it could be measured. In that pyramid were to be found valuable contributions from the pen of the guest of the evening. It, therefore, became exceedingly appropriate that this toast should be offered at a banquet intended to celebrate the achievements of Dr. Nicholas Senn. It became apparent when it was remembered that in the last twenty years the official index of his contributions to American medical literature amounted to more than 250 entries, 238 of which related to surgical subjects. In the list of titles were 12 printed volumes, some large, some small, but all of them important, many of them being used as textbooks, others as standard works of reference in the majority of medical schools in the Western hemisphere. Of these contributions quite a number had been translated into foreign languages. The range of subjects embraced practically every department of surgery. For the most part these contributions were absolute protocols of original investigation. They covered, among other subjects, the surgery of the pancreas, stomach, the intestines, gall-bladder, etc.

Dr. William E. Quine, Chicago, spoke of his association with Dr. Senn as an interne at the Cook County Hospital. He had seen Dr. Senn as an interne engaged in controversy with the members of the attending staff in relation to problems of diagnosis, and he had seen him floor every one of them on numerous occasions, though boy he was. The intensity of his earnestness, the thoroughness of detail in respect to his methods, had the effect of impressing the speaker and of inspiring him in his future work. It was something of a liberal education to have been under the inspiration and guidance of such a man. It was a gratification to him to participate in these festivities and to contribute in a small way to the testimonials that had been laid at the feet of his old friend. He was sure that Dr. Senn would close his professional career as he began it, and as he had lived it through every day of his life—with sincerity, with intelligence, with dignity of effort, and with an eye single to the best interests, the greatest happiness of his fellowmen, and the greatest advancement of his brethren in the medical profession. The singing of "Auld Lang Syne" brought the proceedings to a close.

CANADA.

The New Toronto General Hospital Scheme Launched.—A conference was held on November 14 of the various parties interested in the proposed new General Hospital for Toronto. The result of the conference was the appointment of a special committee to act with the members of the present Board of Trustees of the hospital in considering and framing a new constitution and mode of government for the hospital. Dr. R. A. Reeve, the Dean of the Medical Faculty of the University, will represent the Medical Faculty on this special committee.

The Montreal General Hospital on the Late Dr. Buller.—At a meeting of the Medical Board of the Montreal General Hospital, held on November 20, the following resolution was unanimously passed: "Resolved that this board has heard with the deepest regret of the death of their late colleague, Dr. Buller, who was identified with the Montreal General Hospital for many years, first, for eighteen years, as ophthalmologist, and then for years as consulting surgeon. Dr. Buller's great abilities, originality and capability for work did much to advance the science of ophthalmology in Canada. His earnestness of purpose and great sincerity made him a most valuable member of the medical profession, whose interests he was always ready and willing to advance. His death is a great loss not only to the medical profession, but to the community at large."

News Items and Personal.—The largest class that ever presented itself to the British Columbia College of Physicians and Surgeons for examination was that of the present year. It numbered twenty-five, of whom eighteen were successful.

Dr. C. J. Fagan, Provincial Medical Health Officer for British Columbia, has arrived home at Victoria, after a visit to the old land and attendance on the Tuberculosis Conference at Paris. Dr. Fagan contracted inflammatory rheumatism on the passage over, and for some time was in New York and Montreal hospitals. The different municipalities of the Province of Manitoba are contributing amounts varying from \$25 to \$100 to the St. Boniface Hospital, Winnipeg.

The total number of patients treated in the General Hospital, Winnipeg, during the week ending November 11 was 370, of whom 237 were men, 95 women and 38 children.

Dr. F. Montizambert, Ottawa, Director-General of Public Health for Canada, will preside over the section on State Medicine at the coming meeting of the British Medical Association in Toronto.

The Address in Medicine at the British Medical Association at Toronto in August next will be delivered by Dr. James Barr; the Address in Surgery by Sir Victor Horsley.

Dr. Norquay, of Winnipeg, has been appointed assistant medical superintendent of the Provincial Asylum of Manitoba at Brandon.

Dr. W. J. Macdonald, who served with "C" Battery in South Africa, and a graduate of Toronto University, has located in practice at St. Catharines, Ont.

Some time ago a practitioner of British Columbia was erased from the medical register of that Province for unprofessional conduct. An appeal to a judge resulted in an order from the court to again place the name upon the register. Recently upon representations from the College of Physicians and Surgeons of British Columbia, three judges of the full court of that Province have decided to allow the appeal of the college.

Dr. P. H. Bryce, the chief medical officer for the De-

partment of the Interior, Immigration Branch, reports that the medical officers at ports of entry have deported over 700 immigrants during the past season for disease.

Dr. G. Forest Weatherhead, assistant physician of the Protestant Hospital for the Insane at Verdun, Quebec, has been presented with a medal by the Royal Canadian Humane Association for bravery in saving a young lady of Orange, N. J., from drowning while bathing in the St. Lawrence River.

Niagara Falls, Ont., will erect a new hospital at a cost of \$17,000.

The new Alexandra Hospital, Montreal, for contagious and infectious diseases in the Protestant population of that city, will be ready for the reception of patients some time in January.

The Western Hospital, Toronto, will erect an addition at a cost of \$10,000.

Quebec City will erect a provincial sanitarium for consumptives, the Quebec Government having donated a site of 500 acres for the purpose.

According to the reports of the Recorder's Court in Montreal, insanity is increasing in that city. The commitments in 1898 were 158; in 1900, 174; in 1904, 251.

GENERAL.

The Finsen Memorial.—The amount collected in Denmark for the erection of a memorial to the late Professor Niels Finsen is said to be 100,000 crowns. King Edward has subscribed £50 and Queen Alexandra £100 to the fund.

Tuberculosis Exhibit in Boston.—Faneuil Hall will be given over to the State health authorities for ten days beginning with December 28 next for a tuberculosis exhibit or demonstration. The object is to show the people how to prevent the spread of consumption. The commonwealth will pay the bills of the demonstration, which will be as unique as novel. What the disease is, how the germ grows and the disease progresses, what can be done to prevent it or to stay it, general instructions and addresses along these lines, with the necessary physical exhibits to make clearer the instructions, etc., will be the main part of the demonstration. From the various institutions and hospitals that treat especially tuberculosis in its various stages will come exhibits and data. Those behind the exhibition are anxious that the public should cooperate. They believe it will mean much for the general health of the community, as well as for the health of individuals who perhaps do not know how to assist themselves, if the exhibition is largely attended.

The Health of the United States Army.—The annual report of the Surgeon General of the United States Army, recently issued, states that the health of the army has shown a steady improvement during the fiscal year which ended on June 30, 1905. During the year there were 406 deaths from all causes. This is at the rate of 6.75 in 1,000, which compares favorably with 8.64 for the previous year and 17.93 for the years 1898-1902. The percentage of men constantly non-effective also showed a material decrease. Pneumonia stands highest as a cause of death, the rate in a thousand being 0.65. Tuberculosis comes second with 0.37, and typhoid fever next with 0.33 per 1,000. During the year there were 206 cases of gunshot wounds, 44 of which proved fatal. Twenty-one men were killed in action, 45 were drowned, 27 committed suicide, and 10 lost their lives through homicide. Among the native troops in the Philippines, 56 soldiers were killed and 25 wounded. The unusual proportion of killed to wounded, there being fewer wounded than killed, is explained by the fact that 47 of the killed were victims of hand-to-hand fighting with

edged weapons. The Surgeon-General says that the result of operations on wounded men shows that the army has a corps of capable surgeons, only two deaths attributable to operations having occurred.

Boston Medical Library Meetings, in Conjunction with the Suffolk District Branch of the Massachusetts Medical Society.—The last meeting was held Wednesday, November 15, at the Library. Dr. Richard C. Cabot was in the chair. As is usual at these meetings, the hall was crowded. Dr. Walter B. Chase showed an intensely interesting series of moving pictures of gaits, spasms and convulsions, first a series of pictures showing epileptic attacks, about thirty in all; next, gaits of all kinds, tabes, spastic paraplegias, etc., choreiform athetoses, the spasms and tricks of feeble-minded children and others. Dr. Chase demonstrated clearly the value of these living pictures as a method of teaching; he has at present some 37,000 feet of films, and is all the time at work on new and valuable subjects.

Dr. Walter B. Cannon demonstrated, also with the moving pictures, the peristaltic action of stomach and intestines in dogs and rabbits, taken by means of the X-ray and bismuth. These pictures gave an entirely new idea of the old peristaltic wave theory.

Dr. Richard Cabot showed six lantern slides, colored photographs of pictures taken of the various stages of autopsy findings, with the organs in situ.

Next, Dr. Cabot and Dr. Towle gave a demonstration with the reflectoscope, a most ingenious device, by which by simply holding an illustration from a book, a small pathological specimen, etc., against a screen in the lantern the image is thrown on the screen, greatly enlarged, in exquisite detail and with perfect coloring. All these demonstrations were received with great enthusiasm, and the meeting was considered one of the best that had been held.

Addition to Newton Hospital.—Ellison Hall, the new building at the Newton Hospital, which is to be used as an addition to and in connection with the work of the present nurses' home, is now almost ready for occupation. The hall is the gift of Mr. and Mrs. Frank A. Day, of Newton, and is a beautiful modern brick structure erected at a cost of upward of \$30,000. The new home was given in honor of the late Hon. William P. Ellison, ex-mayor of Newton, Mrs. Day's father. Mr. Ellison, who died about two years ago, was for thirteen years vice-president of the Newton Hospital Corporation, of which body he was a charter member. His life was full of service for Newton institutions and the people of the city, and the new hall will serve as a monument to the man and his work. Ellison Hall is the sixteenth in the present group of buildings and the erection of the new kitchen building, which is now under way, will give the hospital still another. The growth of the Newton Hospital has been far beyond the expectation of its founders. Twenty years ago the institution consisted of two buildings, the present administration building and Thayer ward. Through the many public contributions and by reason of the excellent management which the institution has always had, it has come to its present size and efficiency. The new kitchen building will be a marvel in the way of modern appliances and convenience. It is to be modelled after similar buildings in the hospitals of the large cities and will make possible a still more sanitary and convenient administration of the hospital even than that under the present most efficient arrangement. The past summer has seen many other improvements

in the hospital. The administration building, which has done service since the hospital was founded, has been moved to make way for the new kitchen building and has been re-enlarged and remodelled. Wherever modern improvements of the latest designs were necessary they have been installed and the whole hospital has been inspected and wholesale improvements for the comfort of patients and employees have been made.

The South's Scylla and Charybdis.—According to the New York *Times* the Chattanooga *Times* remarks that the whole South is to be congratulated upon the result of the conference of the Governors of fourteen States upon the regulation of quarantine. As the conference was summoned under the auspices of this newspaper, it is gratifying to learn upon its authority that the result is so satisfying. At one time there seemed a prospect that antagonisms upon the question of State or Federal quarantine would produce a dead-lock or a disagreement upon political considerations. And besides this difficulty there was doubt how the hygienic and labor interests of the South could be reconciled. The difficulty was solved by the adoption of two sets of resolutions. One recommends Federal control of seacoast quarantine, with cooperation between the States and the United States regarding inter-State quarantine. The other resolutions expressly invite all desirable white immigrants to disregard representations that they are unwelcome and to come freely to help develop Southern resources. The quarantine resolutions adopted so authoritatively should go far to settle a disputed question in which the entire Nation is interested. The most ardent advocate of State's rights can hardly doubt that the Federal Government can regulate marine quarantine better than any single State, and efficient seacoast quarantine will go far to dispense with the necessity for any inter-State quarantine. If the United States had kept yellow fever out of New Orleans there would have been no occasion for the shotgun abuses. The susceptibilities of Gov. Vardaman and his followers yielded to the common-sense talk of Mr. Williams, who suggested that Federal money could be obtained, and local funds saved, only by yielding to the National Government control of a National function. The United States, he argued, with National resources should defend the United States against such a common calamity as an epidemic, and cities like New Orleans should not be burdened with a task not rightly theirs. Mr. Williams's influence, as well as his arguments will be efficient when this topic recurs before Congress. The immigration resolutions are less local than they seem at first. If the South is to keep step with the Nation's progress it cannot deny itself facilities availed of in other sections. For example, nothing is more remarkable than the rivalry between Northern and Southern cotton mills, and there is no greater obstacle to Southern advancement than difficulty to get its staple picked and spun. New England mills are not worked by New England labor. French Canadians first filled the demand for labor, and other nationalities followed. In Lowell there is an entire section of the city filled by a Greek colony. The Italians have qualities fitting them for Southern climates, and if a few families are established, others will follow. Nothing was better in Mr. Williams' remarks than his impatient dismissal of the false pride which differentiates the South

from the rest of the Union. The same principles make for prosperity everywhere within the National limits, and he hoped that on the labor as well as upon the quarantine questions the South would profit by the experience of other sections and march with them. The result shows that this reasoning prevailed, and it is hardly to be doubted that the Chattanooga convention will benefit all the States represented.

CORRESPONDENCE.

GIBBS MEMORIAL PRIZE.

To the Editor of the MEDICAL NEWS:

DEAR SIR: In December, 1902, you published, at the request of the trustees of the New York Academy of Medicine, the following communication:

"THE EDWARD N. GIBBS MEMORIAL PRIZE.

"ONE THOUSAND DOLLARS.

"Subject.—The Etiology, Pathology and Treatment of the Diseases of the Kidney.

"The New York Academy of Medicine announces that the sum of One Thousand Dollars will be awarded to the author of the best essay in competition for the above-mentioned prize. The subject of the essay, as stated, shall be 'The Etiology, Pathology and Treatment of the Diseases of the Kidney.' Essays must be presented on or before October first, 1904. Each essay must be in English, typewritten, designated by a motto, or device, and accompanied by a sealed envelope, bearing the same motto, or device, which shall contain the name and address of the author. No envelope will be opened except that which accompanied the successful essay. The Academy reserves the right, according to the direction of the donors, not to award the prize if no essay shall be deemed worthy of it. The Academy will return the unsuccessful essays, if claimed by their respective authors, or by authorized agents, within six months. An essay must show originality in order to obtain the prize. The competition is open to the members of the regular medical profession of the United States. The original of the successful essay shall be the property of the Academy, and, according to the deed of gift, will be published in its Transactions. The essays shall be transmitted to The Committee of the Trustees of the New York Academy of Medicine on the Edward N. Gibbs Memorial Prize."

This publication was sent out as the result of a letter written to Robert F. Weir, M.D., President of the New York Academy of Medicine on March 25, 1901. It read as follows:

ROBERT F. WEIR, M.D.,

President, New York Academy of Medicine.

DEAR SIR: In memory of the late Edward N. Gibbs, we wish to present to The New York Academy of Medicine a fund of ten thousand dollars, to be permanently invested by the corporation and the income devoted under its distinguished auspices as follows:

There shall be awarded triennially to the physician of regular standing in the medical profession of the United States of America who shall present the best original essay upon the etiology, pathology and treatment of the diseases of the kidney, a prize to be known as the "Edward N. Gibbs Memorial Prize."

The amount of such prize shall equal the accumulated income of said fund for three years or for the period elapsed from the last award, the same being not less than three years, subject only to such deduction as may be necessary by the expense of the public advertisement or announcement of the terms of competi-

tion and publication of the successful essay in the published Transactions of the Academy.

The terms of competition and the award of the prize shall be subject solely to the determination of such a committee of its members as shall be selected by the corporation therefor. In the event that in any year of competition no essay shall be presented which, in the opinion of such committee, is of sufficient value or merit to justify the award of the prize, such committee may withhold the prize and may direct that such prize be again competed for in not less than one year thereafter, when the committee shall have the same power of awarding or of withholding.

Enclosed is a check for ten thousand dollars (\$10,000), the amount of prize fund.

We hope by this means to stimulate and encourage inquiry into the causes, nature and treatment of these diseases, and feel sure that we may safely confide to the Academy all details of effecting this purpose.

We are, dear sir,

Very truly yours,

SARAH BARKER GIBBS,

GEORGE BARKER GIBBS.

Before the Prize Committee, Drs. A. A. Smith, chairman; E. G. Janeway, W. T. Bull and T. M. Prudden, there were two essays. The refusal of the committee to award the prize was received by the trustees of the Academy on December 28, 1904, and by the Academy in its next stated meeting.

They beg to announce to the profession that essays treating of the subjects for which the prize was founded will be received on or before January 1, 1907, by the Recording Secretary of the New York Academy of Medicine, at 17 West Forty-third Street.

A. JACOBI, M.D.,
Chairman.

CHARLES L. DANA, M.D.,
President.

The Trustees.

A. M. JACOBUS, M. D.,
Secretary.

JOHN H. HUDDLESTON, M.D.,
Recording Secretary.

The New York Academy of Medicine.

RECTAL DILATATION.

To the Editor of the MEDICAL NEWS:

DEAR SIR: I wish to call the attention of the busy practitioner to the very serious danger of the use of rectal dilators. The philosophy of rectal dilatation is, in my opinion, a mechanical pederasty, as the inhibition of the sphincter muscles of the anus would be destroyed. The patient would in a short time have no power to retain fecal matter.

I do not deny that a few rectal dilatations might prove beneficial in cases of tight sphincters, such as supervening upon the addiction of strychnine and other stimulants.

L. M. YOUNG, M.D.

271 South Hermitage Avenue, Chicago.
Oct. 21, 1905.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, held October 5, 1905.

The President, Charles L. Dana, M.D., in the Chair.

The scientific business of the evening began with a paper on parathyroids, especially in their relation to Parkinson's disease.

Anatomy and Physiology of Parathyroids.—Dr. Wm. M. Berkeley, who read the paper, said that these little glands, as their name indicates, are to be found lying alongside the thyroid in practically

all of the higher animals. Most of the vertebrates have now been examined for the purpose of determining this fact, and four, though sometimes five, parathyroid glands have been constantly found. As a rule, two occur on each side, lapping the thyroid gland. Like the adrenal glands, and the pituitary body, the parathyroids are composed of solid columns of cells, with a similar structure in all animals. Of their physiology not much is known, though it has been determined that one or more of them up to three may be removed from the cat without producing any manifestation of disease or of any change in the animal. If all of the glands are removed, however, salivation occurs, the breathing becomes very hurried, albuminuria develops, and great emaciation takes place. There is a distinct tremor present nearly all the time, and convulsions sometimes occur. It becomes very difficult for the animal to walk. Death usually takes place in about ten days. If the parathyroid material from another animal be administered to the parathyroid-ectomized animal, most of the symptoms are relieved for the time being, but the animal eventually dies.

Consequences of Removal of Parathyroids.

There has been a serious question as to whether the removal of the parathyroid glands produces a recognizable set of symptoms always of the same kind such as occurs in Addison's disease or in myxedema. A number of investigators have made suggestions in this matter. Gley and Edwards, working in Paris, thought that the degeneration of the parathyroids caused Graves' disease. Other observers have connected affections of them with infantile convulsions and with eclampsia. Dr. MacCallum suggested the possibility that epilepsy might be due to these little bodies. A number of observers have thought that tetany was connected with them. In some autopsies abundant mitoses were found in the cells of these glands in persons who died during a tetanic seizure. During pregnancy, if there are signs of tetany, some observers have found that the symptoms are relieved by the administration of parathyroids. The evidence, however, is too slender absolutely to support the conclusion until further observations are completed.

Paralysis Agitans and the Parathyroids.—Dr. Berkeley himself was very much struck with the fact in watching animals from whom the parathyroids had been removed, that their condition resembled that of patients suffering from paralysis agitans. The idea that possibly this affection might be due to a toxin in the system that should be neutralized by the parathyroids, but was not, naturally followed. A number of observers have suggested a toxic origin for paralysis agitans. In 1893, Dr. Chas. L. Dana suggested that there might be some toxic agent in the blood affecting special areas of the cerebrum and spinal cord. Six years later he added the further thought that the affection looked not unlike one in which there would be found some absence of an important glandular secretion. He tried the administration of thyroid, but patients grew worse, though they were better for a time under the administration of pituitary body, the relief did not continue. Möbius also suggested an endogenous toxemia.

Clinical Results.—The use of parathyroid material seemed justified in these cases therefore. Altogether eleven cases were under the observation of various conservative practitioners. The majority of

them were relieved from some of their symptoms, and some of them in whom the treatment was carefully maintained for some time, the relief was so great as to constitute a complete intermission of the symptoms. One case has suffered very severely from tremor in the hand, so that he had been compelled to give up his occupation of tailor, and after taking a certain amount of parathyroid he could thread his needle and went back to his trade once more. In other cases almost as strikingly good results were obtained. In some, however, the relief was only at the beginning and then the symptoms returned.

Parathyroid Material.—The desiccated parathyroids degenerate rather easily and must be kept on ice. It must be employed in comparatively small doses, for large doses produce an exaggeration of the symptoms. Each specimen of the material that is used must be tested physiologically; otherwise it may be absolutely inert. Material obtained from Armour & Company has proved the most worthy of confidence in Dr. Berkeley's hands, and Mr. Bell, the head of the physiological department of Armour, has taken special care in the preparation of the material. The remote effect that may be produced by administration of desiccated parathyroids is as yet unknown, for no patient has taken the remedy for more than four months. There seems to be no doubt now that the parathyroids are not associated with Graves' disease, or with cretinism, since in both of these classes of cases well-developed parathyroids have been found. As to the possible connection of degenerate parathyroids with Parkinson's disease, the whole matter hangs on autopsy, and Dr. Berkeley has not been able as yet to obtain even one on a subject that had died during an active stage of paralysis agitans. He suggests the hypothesis, however, and hopes that others who may have the opportunity of investigating the matter, may carefully investigate the state of the parathyroids in such autopsies as they have.

Dr. Hunt, who opened the discussion, said that in the case in which he had seen parathyroids used for Parkinson's disease, the patient had not been long enough under observation to draw any definite conclusion.

Variability of Parathyroids.—Dr. Fergusson said that the parathyroids were too extremely variable in location, number and appearance, for any conclusion to be made about them, except after very careful investigation. In connection with Dr. Rodgers, Dr. Fergusson has examined over two hundred portions of tissue, thought at the time of autopsy to contain parathyroid material. Of these one hundred and eighty-nine tissue specimens came from adults, four or five being removed from each subject. Sixty-one of these pieces of tissue contained one or two parathyroids, that is, about one in three. There were eighty-two pieces of thyroid, most of these in little lobulated masses, the so-called accessory thyroids. Thirty-six were lymphatic glands, a few were hemolymph glands. Ten were remnants of the thymus. Some contained only fat or nodules of connective tissue; one was a mucous gland, and many of the specimens contained only the merest speck of parathyroid material, impossible to recognize, except with the microscope.

Infantile Parathyroids.—Twenty-eight tissue specimens for examination were obtained from in-

fants. Eleven of these contained parathyroid material, or about one in three as before. Nine were accessory thyroids; three were lymphatic glands; six were thymus remnants. In the infant the parathyroid cannot be said to be smaller in size than in the adult, because there is an extreme variability in this organ. Usually parathyroids are said to be from three to five millimeters in diameter. The fact is that the maximum size is about five millimeters, but they run down to fifteen micromillimeters, a size at which, of course, they could not possibly be directed by the naked eye. In human beings they are never so regularly situated as Cohn has described them in the cat. Only once in all the human beings examined were the thyroids found in the supposed normal locations. Their shape is also extremely variable, and they may be ovoid or may only be a very minute, somewhat rounded, body, lying along the vessels going to the thyroid. Certainly it would be a daring surgeon who would attempt to cut down in the cervical region with the idea of removing all of the parathyroid tissue, and it only.

Pathology of Parathyroid.—Very little work has been done in describing the pathological conditions which occur in the parathyroids. The main form of degeneration seems to be an overgrowth of connective tissue. Curiously enough there is normally more connective tissue in the young than in the old. The parenchyma of the glands is much more extensive in old persons, and the gland is evidently not meant for youthful metabolism. Congestion of the glands is quite frequent. Pigmentation is noted at times, and there are marked changes in the appearances of the cells of the parenchyma, such as would remind one of the changes that occur during the function of a gland.

Parathyroid Etiology.—There has been much conjecture, Dr. Rodgers said, with regard to the possible connection of parathyroid degeneration and various diseases. Dr. Rodgers at one time believed that the deaths, which occurred in Graves' disease after operation for the removal of the thyroid gland, might be due to the removal of the parathyroids at the same time. An examination of specimens showed, however, that the parathyroids had not been removed with the thyroids. The extreme variability in size and position of the parathyroids is as noteworthy in horses as it is in men. Dr. Rodgers has had opportunity to dissect the cervical region of a number of dead horses that had been collected by one of the city departments, and he found that even in these animals no dependence could be placed on microscopic appearances, and only the microscope enabled the observer to decide whether there had been any changes in the glands. In Dr. Rodgers' opinion the parathyroids have much to do with convulsions. Just what the connection is, however, is not sure. A pup from whom the parathyroids have been removed died in convulsions. An adult dog may or may not die. The glands are much more closely connected with the thyroid and the thymus than is usually thought.

Clinical Experience.—Dr. James J. Walsh said that as the result of the hypothesis, that possibly the parathyroid glands were connected with Graves' disease, he had used desiccated parathyroids in four well-marked cases of this affection. The dosage was at first one-half grain three times a day, and later one grain three times a day. Both the milder cases were apparently improved by the remedy. Of

course, they were frankly told that they were taking a new remedy, and also something of its possible character in relation to their disease. The well-known tendency for Graves' disease to have in mild form distinct remissions, might well account for the improvement in these cases. Two severer cases, treated at first with small quantities without any result, received larger doses up to four grains per day, and then had a definite deterioration of symptoms.

Glands of the Neck and Etiology and Therapeutics.

—Dr. Walsh said that the use of various extracts and desiccations of the glands in the neck formed an interesting bit of history during the last ten years. When an English surgeon announced that some of his patients suffering from Graves' disease, were improved by the administration of thyroid substance, a number of persons throughout the world tried this material. The usual result was, of course, that the patients grew worse. Then the England surgeon looked more carefully to the source of the material, which he had been using, and announced that it was thymus and not thyroid that the butcher had been furnishing him with. For a while then all the world used thymus without any results to speak of. It reminds one a little of the use of what was supposed to be prostate gland for prostatism. Many patients were relieved in Berlin, but it was found that the butcher had been supplying seminal vesicles instead of prostatic material. Many of the so-called major neuroses, from epilepsy through Graves' disease to various less serious nervous affections, have been attributed to affections of the parathyroids. It has now come the turn for Parkinson's disease, but as is evident, from the reports with regard to location and size of parathyroids in normal individuals, great care will have to be taken in the investigation, before any conclusions can be arrived at. Microscopical examinations will not be enough. In Virchow's laboratory, some seven years ago, the removal of a number of specimens, with the idea of determining whether parathyroids were present or not, showed that only in about one out of four of the specimens had the parathyroid been obtained when looked for with the naked eye.

The last word in the discussion was said by Dr. Dana, who said that some of his patients seemed to be improved at first by the use of parathyroid material, though later as good results were not obtained. The conclusion is unsatisfactory, but it is not sure that the real gland was employed in some of the cases.

Dangers of the X-ray.—Dr. Arthur Holding, of Albany, N. Y., discussed the dangers of the X-ray to the physician employing them. The burns produced by the X-ray tubes are distinguished for their initial latency, their difficulty of cure, the arteritis which is behind them, and the soft scars with telangiectasis which so often follows them. This shows that they are due to a form of gangrene. Physicians have suffered very severely in the last few years. Three have died as a consequence of injudicious exposure to the rays. In some of these, amputations of the hands and arms have been made, even beyond the shoulders. In one case nine separate epitheliomata had developed on the fingers. In thirty cases, of which Dr. Holding has knowledge, there were operations for lesions of the hands. Eczema and the most chronic skin lesions with serious pathological condition of the eyes, are extremely common. Most of these, however, improve

at once when the use of the X-rays is given up for a time.

Precautions Necessary.—The fluoroscope should not be employed as a means of observation, since it is dangerous for the eyes, and lead glass should be employed to protect them. A lead suit of armor would be too heavy, a lead apron is not enough protection. A lead protector for the tube does not allow the rays to be seen to determine the amount of their fluorescence. An apron made of rubber tissue, in which a good deal of bismuth has been impregnated, protects all the important parts of the body and is perhaps the best protection. Radium, which has become prominent because of its connection with the X-ray, is not superior as a therapeutic agent, but its freedom from connecting wires allows of its use in the stomach, esophagus and bladder. Dr. Holding presented some specimens of epitheliomata which had developed in X-ray burns, and also of the azoospermia with spermatin crystals which develops as a result of carelessness in the use of X-rays on the part of operators who handle the X-rays much.

Necessity for X-rays.—Dr. Hermann Grad said that the operator must not expose himself, though this phase of the question was not thought of when the X-rays were first introduced. Enough has been learned now, however, to protect the patient from X-ray burns, especially when they are used only once for diagnostic purposes. The courts have recently come to acknowledge the value of radiograms. A woman hurt on the street cars was thought at first, on account of the swelling present, not to have a dislocation; later a dislocation was found by means of a radiogram. The railway company then claimed that the permanency of the injury was due not to the original hurt, but to the neglect properly to care for it.

Dr. Cole said that no form of perfect protection yet invented is sufficient for the operator. He considers that the only absolutely safe procedure is to have the tube and the patient in one room and the operator in the next room, observing and directing operations, through a peephole of lead glass. The only test of being protected is for the X-ray operator to carry a photographic film in his pocket, and if this is spoiled, his precautions are not sufficient. Dr. Cole lost the finger nails of one hand, using the X-rays, and then the finger nails of the other hand; he then applied the tube by means of his arm, and lost all the hair from that. He has been away from the use of the X-rays for three months from that, however, out in the sunlight most of the time, and though it may sound like a patent medicine advertisement, he now has a double crop of hair on the parts previously affected.

X-rays Overused.—Dr. Piffard said that most of the cases reported cured by the X-rays could have been treated just as effectively, and probably quicker and cheaper, by other means than the X-rays. Personally, he has found that gloves coated with white paint are the best protective for the hands. He has endeavored to obtain tubes made of a kind of lead glass, except for a window in them of other glass, which might prevent the diffusion of the rays and protect the operator from the caustic rays and the sterilizing rays.

Dr. Cleaves said that always after using the X-rays the patient should be exposed to strong light. This seems to prevent subsequent complications, with which she has never been bothered.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held October 4, 1905.

The President, Chas. S. Bacon, M.D., in the Chair.

Tumor of the Brain.—Dr. Max Reichmann reported a case of tumor of the brain, diagnosed by skiagraph and Roentgenogram. He exhibited the patient, and showed pictures of the case.

Dr. Sanger Brown said that he had never seen a skiagram in which the convolutions were so plainly shown. His experience, however, was that skiagraphs were misleading in tumors of the brain. While he thought it was warrantable to have skiagraphs made in these cases, he did not think confidence should be placed on the results, because he had had several operations made where it was thought by the operator, an experienced surgeon, that there was a tumor of the brain, and they had been disappointed after operation. The case exhibited was interesting in consequence of the long duration of the specific growth. It was a point to be remembered with a good deal of profit, if it had been satisfactorily demonstrated to be a specific growth, that such a growth could occur in the brain and be present for five years without any sign of a specific condition manifesting itself in the child. It undoubtedly should be classed as a congenital syphilitic growth. He thinks that practically all cerebral tumors show a wonderful abatement of symptoms upon the exhibition of full doses of the iodides.

Dr. Charles P. Donelson was much interested in the case and in the skiagraph. He referred to the difficulty of localizing disease or tumors of the brain, and said that it had for many years been a stumbling-block to physicians everywhere. He believed that the X-ray had opened a new era in distinguishing many diseases of the brain. His experience, although limited, has been that some cases of brain tumors had been relieved by operative measures, and related a case in point.

Dr. Julius Grinker spoke in reference to the X-ray in diagnosing brain tumor. He believed Dr. Reichmann overvalued the X-ray in diagnosing these growths. He thought that a tumor of dense consistency could be easily detected by the X-ray, yet the same tumor could be diagnosed without the X-ray. In tumors situated in regions where the focal symptoms were indefinite—where brain tumor was suspected—the profession is disappointed in the findings of the X-ray. He took issue with the author, and said that in spite of the X-ray one should make a careful study of every case.

Dr. L. Harrison Mettler agreed with Dr. Grinker. His experience in the use of skiagrams in attempting to diagnose intracranial neoplasms, though limited, has been disappointing. He said that too much reliance should not be placed on the X-ray in these cases, but more upon those well-known, established clinical findings of intracranial growths of all kinds. Skiagrams are simply confirmatory in these cases, and have not reached a point of perfection in an absolutely confirmatory sense. The X-ray was, after all, only an aid.

Dr. Reichmann, in closing the discussion, said that it was possible to skiagraph the convolutions of the brain and bring them out very clearly, and that in the case he reported there was positive evidence of the presence of a tumor of the brain.

Incipient Acromegaly.—Dr. Harold N. Moyer presented a woman, twenty-three years of age, in whom he had made this diagnosis. The patient first consulted him for progressive failure of vision. The history of the case was not significant. Seven years ago she became amenorrheic. Three weeks ago she began to have headache on the right side of the head, which

pains were neuralgic in character and radiated into the temple, and had progressed with increasing severity. That was the subjective history. Other than that she had been well, so far as she knew. There was a tendency to somnolence in this case. Bitemporal hemianopsia was present. He believed that these symptoms pointed unquestionably to beginning acromegaly. Patient thought her face was enlarged; also her fingers. Dr. Moyer suggested the removal of the pituitary gland, if such were possible, and thought there ought to be some advance in surgery of late years along this line. It seemed to him that surgery would offer the only chance. He referred to a case reported in the literature where an operation had been attempted in a similar case, but did not know how well the surgeon had succeeded. This was the earliest case of acromegaly that he had ever seen.

Dr. Henry Gradle, in discussing Dr. Moyer's case, said that hemianopsia might be divided into those cases which were clearly due to acromegaly and those which were not. There were, of course, also cases on the borderline, perhaps like Dr. Moyer's patient. There was a large proportion, for instance, of cases of hemianopsia positively not due to acromegaly. There were cases that had been observed for years, and personally he had made some observations of that kind. He referred to a case, the report of which was published by Weir Mitchell, where the chiasm so pressed on an anomalous artery that hemianopsia was produced. A point of interest to him in these cases was the expansion of the front of the face, such as is seen occasionally after extensive fibroma at the root of the pharynx.

Dr. Hugh T. Patrick said that every tumor of the pituitary body did not mean acromegaly, by any means. Some of these tumors were benign, and he had had at least one case in which total amblyopia supervened, but otherwise the individual was perfectly well and strong, and of course that would bear upon the question of surgical intervention. He thought the removal of the enlarged pituitary body would be quite an undertaking, even for the most experienced surgeon.

Dr. Julius Grinker referred to the article of Dr. W. W. Gray, describing cases of incipient acromegaly. He referred to Gray's conclusions regarding the separation of the teeth as a diagnostic point of value. That is, he believes that if a person has large or abnormal spaces between the teeth of the lower jaw, and it can be ascertained that previously the teeth were close together, and now began to separate, it is a sure sign of beginning acromegaly.

Dr. Moyer, in closing, said that a German had referred to separation of the teeth before Gray took it up. In his case the teeth were close together in both jaws. If he were not confident that the case was one of incipient acromegaly, he would not have presented the patient.

Tabes in a Negress.—Dr. Hugh T. Patrick showed a colored woman, forty-one years of age, who had all the typical symptoms of tabes. There were three points of interest in the case. The first was a perfectly typical, complete, ordinary case of tabes in a colored patient, which is quite rare. This, he thought, was the sixth case he had seen, and of those it was the only typical one. She had the Argyll-Robertson pupil. She had loss of the deep reflexes; analgesia of the legs; trunk analgesia; imperfect bladder function, so far as holding the contents of this organ was concerned; typical ataxia, with a perfectly typical gait. Why tabes was so rare in the colored race, yet the most frequent cause of tabes was so frequent in them, had not yet been

ascertained. Another point of interest in the case was the fact that her symptoms had progressed very rapidly in the last few months, when there had been an aggravation of all the symptoms. Patient had lost considerably in weight. This, he said, was a sign of grave significance. With regard to treatment, Dr. Patrick advised the rest cure, with nutritious food.

Palsy.—Dr. Patrick also showed a patient with palsy. This patient either slept on his arm, or lay with it in such a position that the edge of the bed pressed on the nerve. He had wrist-drop of the right hand. It was a paralysis of the musculospiral nerve, rather complete as to degree, but not entirely so.

Stated Meeting, held October 11, 1905.

The President, Chas. S. Bacon, M.D., in the Chair.

Brain Tumor.—Dr. Julius Grinker reported a case of brain tumor, with the following history: M. M., a laborer, age twenty-eight years, entered Cook County Hospital March 14, 1905. The family and personal history were negative, and syphilis was denied. His habits were always good, and he never sustained an injury. Three weeks previous to admission he began to complain of severe headaches, which were constant and generalized. At about the same time spells of vomiting appeared, which seemed to have no relation to the gastric functions. A feeling of nausea always accompanied these vomiting spells, but sometimes there was nausea without vomiting. Somewhat later in the course of the disease attacks of vertigo came on whenever the patient attempted to stand or walk. Then progressive generalized weakness of the entire muscular apparatus became a marked feature. The before-mentioned symptoms soon inhibited any kind of work and compelled the patient to lie in bed most of the time. An examination showed a man of medium height and weight, with well-developed muscles, who staggered in attempts at walking. His face appeared slightly asymmetrical, though no paralysis or paresis could be detected when the muscles were at rest. The skin was somewhat muddy; there were no eruptions, but a few insignificant scars from a burn could be seen on his back. Glandular enlargements could not be detected. Viscera were normal. The pulse was rather slow and full, with fairly high tension. The secretions and excretions yielded negative results, with the exception of the stomach contents, which were somewhat deficient in free hydrochloric acid. A slight difference in the innervation of the two halves of the face in favor of the left half was evident when the patient attempted to uncover his teeth, blow up his cheeks or move his jaw from side to side, but there was no difference on the two sides in transverse and longitudinal wrinkling of the brow and in the function of the orbicularis palpebrarum muscle. The tongue was somewhat tremulous and when protruded deviated slightly to the right. Although there was no paralysis or paresis of any muscles, the grip was rather weak, in both hands, but slightly better on the left side. Strength was not appreciably diminished in the lower extremities except that the right limb was not as strong as the left. Coordination was normal in upper and lower extremities, but the patient at times presented a peculiar staggering gait. The superficial reflexes were normal on both sides. The upper reflexes were somewhat brisk, slightly more so on the right side. The left knee-jerk was about normal, the right is slightly in excess. Ankle clonus was barely indicated on the right and doubtful on the left side. There was no Babinski, Oppenheim or Gordon reflex. Sensation was unimpaired in all its qualities. The eyes showed

nothing abnormal at the first examination. The patient is mostly depressed and worried greatly over his disease and about his family. He never indulged in flip-pant talk, the so-called "Witzelsucht" of German writers. His speech was rather slow and labored, and was quite unintelligible, partly because of his ignorance of English. March 22, 1905, it was noted that the left palpebral fissure was wider than the right, and that the left pupil was somewhat dilated and reacted sluggishly to light.

On April 15, 1905, Dr. Grinker could easily make out a double optic neuritis, which was verified by Dr. B. Pusey.

The patient frequently groaned in pain and would place his hands over the frontal region as if to indicate the exact location of his pain. Slight physical or mental strain, such as walking or being interrogated about his symptoms, always aggravated the headache. No bruit could be heard over any portion of the cranium, and percussion failed to elicit the cracked-pot resonance occasionally noted in brain tumor. Somewhat toward the end the right-sided weakness became more pronounced, without, however, developing into distinct loss of power. There never were Jacksonian or other convulsions. The patient eventually became more apathetic and was even stuporous at times, but he could always be sufficiently aroused to answer questions.

A skiagraphic picture showed nothing of value, from a diagnostic point of view.

Résumé.—Dr. Grinker gave the following résumé: The headache, vomiting, vertigo, general weakness, optic neuritis, and gradually deepening mental apathy, with staggering gait, and the slowly developing weakness of the right half of the body, led to a diagnosis of brain tumor. Of localizing value was the difference in the muscular strength on the two sides of the body, possibly the more pronounced papillitis on the left side, and the mental apathy and tendency to somnolency. In the absence of symptoms pointing to cortical irritation, such as Jacksonian fits or muscular twitchings of any kind, he considered the neoplasm to be most probably sub-cortical in location, and the right-sided weakness in the arms and face led him to locate this tumor on the left side of the brain in the region of the anterior central convolution bordering the Rolandic fissure, and probably extending from about the junction of the upper with the middle third down near to the base, but not involving the base of the brain.

The diagnosis was verified by operation, and post-mortem findings, for the patient was found to have a large infiltrating glioma in the frontal lobe, involving the ascending frontal convolution. In conclusion, Dr. Grinker criticized the old schemes of cerebral localization, and said he accepted the main findings which place most of the motor area in the ascending frontal convolution anterior to the Rolandic fissure, instead of in the postcentral convolution.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held October 11, 1905.

The President, James M. Anders, M.D., in the Chair.

SYMPOSIUM ON DIABETES.

Physiology of Glycolysis.—Dr. David L. Edsall presented this paper, reviewing the literature concerning the chemical changes that sugar is known or suspected to go through in the body in the course of its assimilation. He also referred to the various theories and experiments in regard to the existence

of a demonstrable glycolytic ferment and the conditions that affect its action. The most important fact known concerning glycolysis he said was the influence exerted upon the formation or destruction of acids. He stated further, that something that occurred in the course of the metabolism of sugar prevented the escape of large amounts of acids, while when carbohydrates were withdrawn from the diet, in diabetes or in health, and indeed in any fever or disease, large amounts of acid entered the circulation and produced more or less severe intoxication.

Varieties of Glycosuria.—Dr. L. Napoleon Boston discussed at some length the varieties of glycosuria, classifying this symptom according to its various different etiologic entity and also as to the severity of this condition. Under alimentary glycosuria mention was made of twelve cases under personal observation where the percentage of sugar passed was rather high, but in none of these was more than fifty ounces of urine voided during the 24 hours. Some of these patients displayed glycosuria, periodically occurring every one to twelve months. During the past two years there had been studied at the Medico-Chirurgical Laboratory eight glycosuric urines collected from children under two years of age. Traumatic and puerperal glycosuria were considered, and two illustrative cases of the latter were cited. Special mention was made regarding the likelihood of the urine to contain milk sugar during the puerperium.

Relations Between Diabetes Insipidus and Diabetes Mellitus.—Dr. A. G. Ellis said that the resemblances and differences might be considered under two headings, clinical or symptomatic, and pathologic. Clinically they resembled each other in the thirst and polyuria. The urines from the two, he said, were also similar, with the great exception of glucose in that of the saccharine type. Also, they were similar in some of the causes, as heredity, injuries to the nervous system and diseases of the nervous system, as meningitis and brain tumors. The pathology of the two conditions, he said, was so obscure as to render comparison very difficult and unproductive of definite conclusions. Whatever the cause, and however brought about, the perverting carbohydrate or proteid metabolism, with the resulting glycosuria, of diabetes mellitus, was the distinctive feature of that disease and separated it sharply from the insipid type. This was considered as probably the only essential difference between the two, but sufficed clearly to differentiate them. One form might change into the other, and several cases were cited. This, however, did not, in his opinion, necessarily signify an actual interrelation between them. One reported case developed, during diabetes insipidus, coma which closely resembled that often seen in the saccharine type. This, the author thought, seemed to show the possible production of similar products, although it might have been a transition case.

Management of Cases of Diabetes Mellitus.—Dr. James Tyson, in this paper, stated his belief that the results of the treatment of diabetes mellitus were, on the whole, more satisfactory in the last decade than prior to this period. This was ascribed to more accurate and systematic practice in the urinalysis for sugar and to a better judgment in the administration of food. In treatment Dr. Tyson said the first consideration was to determine the patient's capacity for the assimilation of sugar and

starch, and the most satisfactory method for this is to give a definite weighed quantity of proteid and carbohydrate food, and study the urine during its use. This precision, however, he said, was not always necessary, and that it was sufficient to have the patient take for breakfast a cup of coffee with cream but without sugar, a couple of eggs and a small piece of bread with butter; for dinner, soup without vegetables, meat and green vegetables; for supper, a cup of tea without sugar and, if desired, oyster or clam broth without milk or flour. The diet should be maintained for three days and the urine then analyzed for sugar. Absence of sugar showed the ability of the patient to assimilate as much carbohydrate contained in the food allowed. The quantity of the same kind of food, therefore, could be increased until the patient was satisfied. If, on the other hand, sugar were found in the urine, the bread should be reduced or substituted by gluten breads more or less pure. Dr. Tyson said he had seen astonishing results follow this simple method. He believed that the fear of a too exclusive diet producing diacetic and oxybutyric acids, the supposed cause of diabetic coma, was exaggerated. He placed much importance upon the value of proper hygiene in the treatment. In the medicinal treatment he referred to opium as the only drug capable of reducing the quantity of glucose. He advocated the use of small doses of Fowler's solution and of such tonics as iron, strychnine and the simple bitters. The alkalies were mentioned as useful, especially as a protection against the acid intoxications. The benefit derived at mineral springs, he thought, was chiefly the result of the relaxation, the freedom from care, the regular diet and the improvement of the hygiene of the individual, although he acknowledged the valuable effects of the waters.

Dr. Frederick P. Henry, in the discussion, said that diabetes mellitus must be considered as a condition of malnutrition, since it was impossible to classify it as dependent upon specific infection or associated with definite anatomical lesions. The chief exciting cause, he said, was generally agreed to be the use of farinaceous and saccharine food to the exhaustion of the power of its assimilation. In this connection reference was made to the statement that in Genoa, where the diet of the people consists largely of meat, it was difficult to get a case of diabetes for diagnostic purposes, while the directly opposite condition prevailed in Naples where farinaceous foods are principal articles of diet. He thought the theory of Ebstein formed a feasible working hypothesis. In the cases in which it was impossible to get rid of the sugar he considered treatment of little avail. Of more importance than the quantitative tests for sugar he considered a test for acetone. One test for acetone mentioned was that of smell, but when this was available the patient's condition was very far advanced. In regard to treatment, Dr. Henry believed that in the presence of more than the normal amount of acetones care should be taken about exercise. In diet he thought that the large amount of butter, considered to be of value, was better given in the form of cream. He places much reliance upon the use of opium and the alkalies. He also stated his belief in the value of tobacco for the diabetic.

Dr. H. A. Hare, referring to the relative frequency of the disease in the two sexes, remarked that nearly 83½ per cent occurred in males. He referred also to the extraordinary increase in the frequency of dia-

betes mellitus. The greatest increase, according to one authority, was between the years of 1860 and 1870, the decade of the Civil War and its consequences. This increase was attributed by the investigator, not so much to the strain and nervous stress incident to that period, as to the fact that toward the end of the decade the people of the United States were eating and drinking more heartily of foods and champagne and other wines carrying a certain amount of sugar. If, as suggested, potatoes form a good diet for diabetics, Dr. Hare thought that the amount of butter recommended might with advantage be taken with the potatoes.

In the light of the knowledge of the present day, Dr. Hare thought that the regulation of the diet in diabetes should be approached with the utmost caution. So little, he said, was known about metabolism that the physician who attempted to place a patient upon a strict diet and very different from that to which he was accustomed, acted upon a parallel with the man dropping a pebble into a fine piece of machinery. He thought it important to remember that carbohydrates should be administered the moment that acetonuria indicated the danger of coma. He referred to Dr. Edsall's statement that levulose could be utilized in diabetes better than sugar. Reference was made to the digestive disturbances and the serous diarrheas sometimes accompanying diabetes, and cited the case of a man who had died of diabetic gangrene. He did not agree with Dr. Henry in the value of the alkalies, unless the case was manifestly gouty, but has the greatest confidence in the use of codeine, morphine and opium. He thought that there was not a clear conception of the actual cause of diabetic coma; also, that it was an insufficiently recognized fact that diabetes was a symptom and not a disease entity. He remarked upon the frequency of the occurrence of diabetes in overeating, loafing, inert club men, and to the frequency of diabetes in Israelites. This was a different type, however, from that following prolonged mental strain or profound shock. A man with sugar in his urine, Dr. Hare did not think, was necessarily a diabetic. Glycosuria he believed to be curable and diabetes mellitus absolutely incurable, although it might be modified by treatment.

Dr. Judson Daland thought that in the dietetic treatment of diabetes a broader view should be taken looking to the restoration of the digestive power. He agreed that acetonuria was indicative of oncoming coma, but believed further that it was suggestive of marked depression of metabolic processes within the body. He thought all were of the opinion that the disease was more common among the well-to-do, and his own experience bore out the statements in regard to the increase in frequency of diabetes. With Dr. Tyson, he believed that the management of the affection had undergone a revolution, and that to-day greater success was obtained in treatment.

Dr. J. Allison Scott thought that in the glycosuria of pregnancy the sugar was shown by examination to be levulose and not glucose. True glycosuria, however, he believed, might exist in pregnancy, and he gave two illustrative cases. One was that of a woman who, two weeks after confinement, presented sugar in the urine. This disappeared, and she was in good health for eight years, but within the last few months she had developed all the symptoms of an active and severe diabetes. The second case was one in which the sugar preceded the confinement

for several months, disappearing after the birth of the child. The woman continued in good health for five years, but a child born at the beginning of the trouble has recently shown evidence of the development of the disease. He was inclined to believe that cases of gout more frequently than other varieties of disease presented sugar, and in cases of this type, in which the joints showed evidence of gouty deposits, he has seen improvement follow the acute serous diarrheas, although the sugar would slowly reappear upon the return to ordinary diet. Such cases he thought did better upon a rather full diet than a restricted one. In a considerable number of diabetic cases Dr. Scott believed that reliance upon symptoms for diagnosis would sometimes lead astray, for while with appropriate treatment the thirst, polyuria and hunger disappeared, large quantities of sugar might be present in the urine.

Dr. John M. Swan said that the presence of boils upon any part of the patient's body should lead to an examination for sugar. Referring to the acknowledged requirement of carbohydrates in every case of alimentary, or true diabetes, he cited an instance in which bread made from black rye flour was used, instead of bread made from wheat flour. Although this bread contained 73 per cent. of starch, there was not shown any increase in the amount of sugar contained in the urine. This was accounted for by the fact that from 10 to 12 per cent. of the starch was converted into dextrose.

Dr. Edsall, in closing, said that he had had under observation a number of cases of glycosuria of pregnancy, and that in most instances he had found much milk sugar, a point which modified the prognosis and treatment. He believed it not infrequent to see a case of glycosuria ultimately become one of true diabetes. Emphasis, he thought, should be placed upon the importance of not at once dismissing a case of glycosuria as simple in its significance. The diabetic coma, he thought, was without doubt due to the acid intoxication, and to recognize its appearance the urine reaction should be carefully watched and quantitative estimations made of the ammonia. If this were present in amounts above 2 grams for the twenty-four hours the patient should be considered in danger of coma, and treatment should be instituted by modification of diet and the use of alkalies.

Dr. Tyson, in closing, referred to the importance of testing for acetonuria as equal to that for sugar, and added emphasis to Dr. Edsall's statement that alimentary glycosuria might, if left alone, pass over into true diabetes. For that reason it was well to consider them cases of diabetes and give them the same careful attention.

BOOK REVIEWS.

THE SURGICAL ASSISTANT. A Manual for Students, Practitioners, Hospital Internes and Nurses. By WALTER M. BRICKNER, B.S., M.D., Assistant Surgeon Mt. Sinai Hospital, Outdoor Department, etc. With 123 illustrations. The International Journal of Surgery Company, New York.

THIS manual of 360 pages, as the author well says in his preface, is essentially technical and aims to be thoroughly practical. It makes no claim for special originality, but endeavors to present a most important subject, that of the relation of the assistant to the operator, in a clear, concise and hitherto unpublished form. While there is a certain amount of material, as must

necessarily be the case in any volume attempting to synthesize so diffuse and diverse topics and technics, which is determined largely by distinguished operators with whom the author has been associated, still there is a great deal of fundamental information correlated in a form which is stable and which should be used the world over practically as given. To students and to assistants other than those in the immediate field of the author's well-known work, these last will naturally prove of much greater value than the admittedly useful and ingenious "wrinkles" and useful hints, many of which are presented in Chapters VII, VIII and IX. Chapter X, containing an excellent differential diagnosis of shock and concealed hemorrhage, is particularly practical and should be familiar to every house surgeon. Two appendices have been added to this excellent manual. The first deals with the preliminary preparation and routine after-treatment of operative cases. It also presents in a most welcome manner the formulæ for the preparation of many surgical materials. The second appendix shows illustrations of a few of the more commonly used surgical instruments. The volume is well made and copiously illustrated, and may conservatively be endorsed as a useful one to all surgeons, and in particular to assistants and to those engaged in teaching the subject of surgical technic.

THE MICROTOMISTS' VADE-MECUM.—A Handbook of the Methods of Microscopic Anatomy. By ARTHUR BOLLES SEE. Sixth edition. P. Blakiston's Son & Co., Philadelphia.

It is without a moment's hesitation that this book may be pronounced as the most valuable on the subject in the English language—in fact, in any language. No worker with the microscope can afford to be without it. Most laboratory manuals dwindle into comparative insignificance in comparison with it. All of the newer methods are to be found in this last edition. It has been the reviewer's experience to find this book at the right hand of almost every worker in the zoological laboratories, but rarely even in the libraries of the student of human histology. It is too good a book to be overlooked by the medical student, as they obtain from it not the isolated facts of technic, but a philosophic mosaic of microchemical lore.

BOOKS RECEIVED.

DISEASES OF THE EYE. By Dr. C. H. May. Fourth edition. 12mo, 391 pages. Illustrated. Wm. Wood & Co., New York.

ELEMENTS OF HOMEOPATHY. By Drs. F. A. Boericke and E. P. Anshütz. 12mo, 196 pages. Boericke & Tafel, Philadelphia.

SYSTEM OF PHYSIOLOGIC THERAPEUTICS. By Dr. S. S. Cohen. Volume XI. 8vo, 388 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

HIGH POTENTIAL AND HIGH FREQUENCY CURRENTS. By Dr. W. B. Snow. 8vo, 196 pages. Illustrated. Scientific Authors' Publishing Co., New York.

DIAGNOSTICS OF INTERNAL MEDICINE. By Dr. G. R. Butler. Second edition. 8vo, 1168 pages. Illustrated. D. Appleton & Company, New York and London.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. ARMY. Second series. Volume X. Government Printing Office, Washington.

PATHOLOGY AND MORBID ANATOMY. By Dr. T. Henry Green. Tenth American edition. Revised by W. Cecil Bosanquet, M.D. 8vo, 610 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, DECEMBER 2, 1905.

No. 23.

ORIGINAL ARTICLES.

SOME PRESENT FALLACIES IN MEDICAL EDUCATION.

BY SAMUEL W. LAMBERT, M.D.,

OF NEW YORK;

PROFESSOR APPLIED THERAPEUTICS, COLLEGE OF PHYSICIANS AND SURGEONS.

THE long vacation for 1905 is over, and we have reassembled to begin another period of work, and this time and place seems fitted to discuss some of the problems of medical education which have seemed settled and fixed in our working system and which we have accepted as such, by custom and inheritance, from many generations of students and instructors who have preceded us on these benches and behind this desk.

Inasmuch as I have selected for discussion those peculiarities of our own curriculum and customs, which I consider as proper subjects for more or less adverse criticism, I have grouped them together under the general title of "Fallacies in Medical Education."

One of the fallacies which I would discuss concerns this very question of a four months' vacation. The fact is that almost no one of us takes the full measure of rest granted by our curriculum, and it cannot be claimed that any one of us needs that amount of time in which to renew the mind and body for another session of work. The individual student is wont to fill in the superfluous portion of this vacation with extra work in courses under instruction or with substitution on the house staffs of the various hospitals. The University, on the other hand, has offered a series of courses covering all branches of medicine, which form a Summer Session in medicine, and occupies the better part of June, July and August. A study of the attendance on these summer courses, however, shows a remarkable lack of agreement between the ideas of the university authorities and those of the student body. The Summer Session this year consisted of forty-one courses and was attended by forty-three students, nine of whom were graduates. During the three years of the existence of this Summer Session the attendance has been 53, 56 and 43 students respectively.

The University, in other words, offers an opportunity for students of medicine to advance their knowledge, and the students practically decline to avail themselves of it. Why this discrepancy between theory and practice? What is the cause of this condition which I would call the fallacy of the Summer Session? The answer is not to be found in the expense involved, for it is a well-known fact that the majority of medical students spend every year for extra tuition at least half

as much again as the amount of their college fees. The solution is not to be sought in the character of the instruction offered, for these courses were to be given by the same men who conduct some of the most popular courses of the regular work of this school. I believe that the riddle can be solved by an analysis of the attendance. Of the 41 courses offered only five were taken at all, and of the 43 students 39 were divided between the two courses of physical diagnosis and practical obstetrics. And all the undergraduates were to be found in these two groups.

I believe that the reason for this condition is to be found in the fact that of the two courses, practical obstetrics and physical diagnosis, which are successful, one forms a very trying part of the work required for graduation and the other is one of the chief requirements of all hospital examinations. I wish at this time only to point out the fact that the existence of a Summer Session under present conditions is a useless appendage to our curriculum. But I would add that I believe that it can be made successful if based on different and on less fallacious foundations.

Another fallacy I wish to refute is one which also concerns the curriculum and for which your instructors are in large measure responsible. I will call this the fallacy of trades unionism in medical education. It has been for some time the fixed policy to limit the amount of opportunity granted in the individual school to each individual student of medicine. No one student was permitted to secure more work than another, at least with official sanction. The result has been that the students with the better equipment, either of preliminary training or of natural endowment and intelligence, have been compelled to limit their activities to correspond with the capabilities for work and for intellectual absorption of their most poorly prepared and their least intelligent fellows.

It can be said that every academic degree necessarily represents only the least requirement necessary for its winning, but it should be possible to say of no degree that it may never represent more than that required minimum of achievement. And yet the degree of doctor of medicine has in the not too distant past been very near too guilty of the charge. To characterize such a system as a "unionizing" of medical education is to stigmatize it as a companion only of those degenerated trades unions which have fallen into the control of the worst elements among their members. But the condition under criticism has not been developed through the efforts of the laggards of medicine, —on the contrary, it is the result of the work of the leaders in the profession, who have had the

control of medical education, in an honest but misguided effort to fulfil their whole duty to every student and to give to each one the same amount of time and the same chance to gain a knowledge of the art and science of medicine. The result is known in the curriculum of the modern medical school which presents a hard and fast high-school course covering the whole subject of medicine. No serious fault can be found with such a curriculum in regard to its thoroughness, to its logical sequence of presentation or to its sufficiency when it is studied on paper. But in practice such a curriculum lacks elasticity and adaptability to new conditions, and is almost incapable of growth and expansion. It permits its votaries to accomplish only a certain minimum of work in a given time and it hampers individual effort and intellectual advance. Under this system two answers have been given to the criticism offered. The answer of the instructor has been to nullify the concerted action of the authorities of his institution and to offer to selected students special opportunity to follow his subject outside the curriculum under more or less personal supervision by himself. The student capable of more work than the required minimum is able to secure it through the favoritism and personal interest of his instructor, but he is not able to secure it exclusively through his ability to do the work.

The second answer is that of the student himself and is a more radical one. Such a student seeks the additional work he desires from instructors who have no official connection with the institution. In this way there has grown up in every medical center a system of theoretical quizzes and practical courses which has no official connection with the medical colleges. The full discussion of this question of unofficial extra mural instruction will form the basis of other fallacies. The true answer to the fallacy of the high school curriculum lies in the securing of extra work neither by favoritism from within nor by purchase from without the medical school. The true answer lies in the substitution for the inelastic fixed high school system of a truly broad adaptable university system of organization. Such a system must be a course system in which several possible ways of doing a certain work are offered at different times of the year and at different hours of the day. Interchangeable duplicate courses must be offered at least in all practical branches, and any student who has the ability to find the time and the desire to specialize should be able to take all or to repeat any number of the multiple advantages offered.

The third fallacy has to do with the confirmed habit of the medical student to modify the existing curriculum to meet his individual ideas. Each student is apt to consider himself the best judge of what he needs to perfect his medical education. In so far as the individual is able to supplement the present required minimum with extra work in dispensary or in hospital, the above assumption perhaps is true. But when a student

begins to substitute other work for parts of this minimum of the curriculum, the assumption is fallacious, no matter how valuable the new work may be for itself. The commonest error for a student to make in this respect is to run away from his required duties and enter some hospital as a substitute for one of the house staff, who is absent on vacation or sick leave. Such substitute work in general is most excellent, but it can be considered in no sense an equivalent exchange for any part of the required work of the curriculum.

The work on the house staff of a general hospital is a most instructive experience and important addition to the more theoretical portions of a medical school's calendar. But such practical work can be considered as a legitimate part of any curriculum only as an addition to its more fundamental portions. A student can secure such practical experience after graduation and in fact will continue to add to his knowledge by constantly increasing his practical experience throughout his whole professional life. The refutation of this fallacy of hospital substitution lies not in the prevention of students taking such practical work, but rather in supplying such opportunities for bedside work as a part of the curriculum in addition to and not in place of laboratory and theoretical courses. The crying need of most American schools is the addition of just such courses in practical bedside work to their curriculum. A comprehensive system of medical clerks and surgical dressers to be filled by undergraduates in medicine is the present and urgent necessity both of the general hospitals and of the schools. And this school is earnestly seeking to supply its students with such advantages.

The fourth fallacy is founded on the idea that an hospital appointment is of greater importance than the taking of the degree of Doctor of Medicine. It is unfortunate that neither of these main objects of the work of the student of medicine can be secured by him, except upon the successful test of an examination. Of course, it is easy to understand the importance which is placed upon the tests for hospital appointments when one considers that the hospital examination is a competition against other individuals and only the upper few are chosen, while the test for the degree is in competition with a certain standard in which all the contestants may win the prize. This fallacy of the hospital appointment leads its victims into further fallacies which we have to discuss shortly, and acts as a disturbing element throughout the whole course of study in the schools. The answer to this fallacy lies in striking at the mistaken notions which have placed the hospital appointment on the highest pinnacle of medical student striving. The truth is that neither the degree nor the hospital appointment should represent the goal of the zealous and earnest student. The true object to be sought for is a thorough and universal knowledge of the

whole art and science of medicine. If a student can obtain in his four years of study a comprehensive training and a well-rounded understanding of the principles and theory of our profession, nothing can prevent that student from taking his degree and from securing a desirable internship.

The nervous rush for hospital places tends to lead the student into a fallacious seeking after special points, and the next fallacy for our discussion is the fallacy of the medical tip. There is a widespread habit among medical students of trying to discover the personal views of the several attending physicians in the particular hospitals for which the student expects to try the examination. In the first place, such personal views represent in each attending physician only some temporary status and transitory point of view in the mental attitude of the physician in question. No physician has or can have exclusive points of view on such a subject as medicine. Such a conception is foreign to the best traditions of our profession and entirely out of harmony with a proper appreciation and study of any science and particularly of medicine. The science of medicine is not an exact science, and this fact cannot be impressed too early on the students of it. The cultivation of this fallacy of the medical tip leads students to take interest only in the immediately useful phases of medical knowledge. It leads students to neglect the broader view and to ignore the facts to be learned from a study of the historical development of medicine. It is bringing up a generation of doctors who will and who do fall easy victims to the cult of those modern idols represented by the secret or patented remedies of anti-this and contra-that. These modern "medicine men" are always working the newest fad to the neglect of the accumulated experience of the healing art. The science and art of medicine is not a race-track where tips and toots have any standing to lead one to pick the winner. The player of the game of medicine must leave nothing to chance, and he will find no short cut to success.

Another fallacy which is closely allied to the present system of competitive hospital examinations is the fallacy of the quiz. The employment of an extra tutor outside of the curriculum of any university is ordinarily made necessary by a failure of any student to come up to the standard of the given curriculum. In medicine, however, we find the peculiar paradox that an outside quiz master is sought not by the poorer students, but by those who stand highest and who are the best prepared. Such a custom has become engrafted on medical education as a result of habit and fear. It has been the habit of the best men for many generations of students to take a quiz; and the fear of failure in the competitive hospital examinations has driven the same men to this alleged panacea for their panicky feelings. The process of reasoning has been about as follows: The best men take a quiz and the best men get

the hospital appointments, and the fallacious inference is drawn that they get the hospitals because they take the quiz. I am certain that I but voice the opinion of the majority of hospital examiners when I assert that the quiz is of but little help to a good student to pass the necessary examinations for entrance to any New York hospital. And I can positively assert that the faculty of the College of Physicians and Surgeons are of an unanimous opinion that the quiz, as at present organized, is rather a drawback and detriment to the proper development of a student of medicine than an assistance to him in his study of true and broad science. The modern quiz is the very hotbed where the fallacy of the medical tip flourishes under cultivation. The modern quiz takes no broad views of medicine as it has developed during the past and as it is developing in the present. On the contrary, the modern quiz attempts to bring all medical knowledge into a system of pigeon-holes in which every possible medical combination of diagnosis, pathology and therapeutics, shall have its labeled pocket. The excuse for such a system is that it puts men into hospitals. But it is more true that men get the hospitals in spite of the system and not because of it. The real misfortune of it lies in the fact that under such a quiz system the student, at the very outset of his career and in its formative period, is given a false idea of his chosen science. Such influences tend to lead the student back to the views of medicine when the various methodists and pathists were warring with each other for exclusive professional support and recognition.

Medical science cannot be brought into the subjection of any system of fixed rules which are characterized by containing the qualifying words *never* and *always*. There exists no medical fact or practice which has not numerous exceptions, no combination of symptoms which always or which never may be presented by certain conditions of disease.

I would characterize the final fallacy, which I wish to discuss, as an outgrowth of a very universal spirit of discontent with the existing order of things—the feeling that everything that is, is wrong. Such a spirit is felt to-day in every walk and relation of civilized life, and it has invaded the field of medical education, at least here in New York. It was my privilege a short time ago to visit a sister university in another city, and I was much impressed with the general spirit of mutual helpfulness that existed between all the departments of that university. The pathologist was anxious to tell me of the good work that was being done in the Surgical Department; the surgeon could talk of but little else than the recent achievements of the gynecologist, and so on. I warrant no one here ever heard a New York surgeon praise a gynecologist. I do not wish to see criticism disappear, but I do wish to see fellow-workers in medicine look for the good in the other man and not only at his bad points.

I do not wish to be understood either as standing up for the existing order of things as being perfect. The spirit of change is the prevalent spirit, but let us not seek or advocate a new thing just because of its newness and without first giving the existing condition a careful consideration to learn if the new proposal is really an improvement, or if it is really some old, discarded fallacy cropping up again in new dress and form.

IS PARALYSIS AGITANS CAUSED BY DEFECTIVE SECRETION OR ATROPHY OF THE PARATHYROID GLANDULES?^{1 2}

BY WM. N. BERKELEY, A.B., M.D.,
OF NEW YORK;

ASSISTANT IN MEDICINE, NEW YORK UNIVERSITY; ATTENDING PHYSICIAN, GOOD SAMARITAN DISPENSARY; ASSISTANT IN PATHOLOGY, PRESBYTERIAN HOSPITAL.

OMITTING historical details of the recent researches on parathyroids, the following statements may be now taken as facts, the conditions in man and others of the higher vertebrates being virtually the same:

The glandules are generally four in number, though sometimes only two or three, occasionally five, can be found. In man they are in close proximity to the thyroid gland, two being normally present on each side, one above the other, behind the rear border of each lateral thyroid lobe. The human glandules vary in size from the dimensions of a grain of wheat to that of a grain of maize. They are soft, yellowish brown, and are covered with a thin fibrous capsule in which a peculiar and characteristic venous tracery may be noticed. They are hard to find, but by competent observers with sufficient experience they have been proved to be invariably present from early fetal life to extreme old age.

Microscopically, like the adrenal and pituitary, the parathyroids show solid columns of epithelial cells, rather irregularly disposed, and supported by variable amounts of fatty connective tissue, in which many vessels are present. This structure is constant for all animals so far examined, and after a little practice the sections are easily identified.

The precise physiology of the glands is unknown, but that they subserve an important function is unquestionable. The surgical removal of one, two or three from a cat or rabbit produces no signs except hypertrophy of the gland or glands remaining. The subsequent removal of the glands left behind, or the removal of all at one time, is followed in twenty-four to forty-eight hours by salivation, tachycardia, tremors and rigidity of the muscles, convulsions, albuminuria, enormously hurried breathing, entire

loss of appetite, and rapid emaciation, the animal dying on the average in from two to ten days. Post mortem there are no constant gross lesions. With the microscope Edmunds,¹ MacCallum² and Russell³ have noted disappearance of the Nissl granulations in the motor cells of the central nervous system and other minor changes.

In my hands dried gland of the ox or sheep administered by the mouth in proper dose to a parathyroidectomized animal relieves the symptoms for the time being, but I have not yet been able by this means to do more than prolong the animal's life; it ultimately dies in any case.

Without halting to theorize upon the precise nature of the parathyroid secretion, whether it be itself a substance essential to tissue metabolism, or an antibody neutralizing metabolic poisons formed elsewhere, or neither of these things, the practical question at once arises, as in the case of the thyroid and the adrenal bodies: Does disorder or atrophy of the parathyroid glands cause a recognizable disease of such definite symptomatology as Addison's disease or myxedema? And if so, can the disease be relieved or cured by administration of a properly prepared gland or gland extract?

This question is not a new one. Gley⁴ and Edmunds⁵ were convinced some years ago that exophthalmic goiter was the disease in question. Against this hypothesis there are now several weighty facts: (1) The symptoms in parathyroidectomized animals are dissimilar to those of exophthalmic goiter; (2) in several reported autopsies on exophthalmic goiter the parathyroids were found histologically unaltered; (3) administration of parathyroid, in any form so far tried, does not appear to relieve the symptoms of exophthalmic goiter.

Jeandelise⁶ mentions infantile convulsions, epilepsy, tetany and *eclampsia* as worthy of consideration, but admits that his views can be hardly called more than suspicions. MacCallum, whose work upon parathyroids has been extensive and thorough, at one time (with proper reserve) suggested epilepsy,² and later has seriously brought forward *tetany*⁷ as the solution of the problem.

In support of the latter hypothesis he reports an autopsy on a case of tetany in an old man dying of extreme dilatation of the stomach. Five good-sized parathyroids were found, *all showing numerous mitoses*. In view of the rarity of such mitoses in ordinary autopsies, he is disposed to conclude that tetanizing toxins from the stomach had made an extraordinary demand upon these glands—with this result. In the same paper he reports that in a woman of thirty-nine years year-long symptoms of tetany which had been specially trying during pregnancy and menstruation, were relieved by parathyroid medication.

Epilepsy having had but little support even by its own advocates, we need only comment upon tetany that the disease itself is a rather vague and variable clinical syndrome and the condition

¹ Read before the New York Academy of Medicine, October 5, 1905.

² A detailed account of some work of mine on parathyroids for several years past, comprising about 125 autopsies on man, some 50 experimental operations on dogs, cats and rabbits, and a number of therapeutic experiments in the laboratory on these animals with various forms of fresh and dry ox-parathyroid, I expect to publish at length in the forthcoming volume of the Presbyterian Hospital Reports.—W. N. B.

in the one autopsy reported might be quite as readily explained in some other way.

My own contribution to this obviously difficult question is that atrophy or insufficiency of the parathyroid glands is perhaps the cause of *paralysis agitans*. Freely admitting the present inadequacy of the proofs I offer the following considerations:

(1) In studying slowly dying parathyroidectomized rabbits in the laboratory of the Presbyterian Hospital nearly eighteen months ago, it struck me at once, without ever having specially reflected on the pathology of *paralysis agitans* before, that the symptoms, in the animal, while *sui generis* in many ways, might be viewed as much more suggestive of this disease than of any other at that time commonly considered in the same connection. The evident disparities would naturally follow when the symptoms resulted in one case from abrupt surgical intervention, and in the other from a slow degeneration.

(2) On reference to the literature it will be found that as long ago as 1893 Dana⁸ seriously suggested *paralysis agitans* as due to a "microbic or humoral toxin" circulating in the blood and having an especial affinity for certain areas of the spinal cord and medulla. Again in 1899⁹ he wrote: "It has long since occurred to me that possibly the disease might be the result of some defect in glandular secretion," and he mentions having actually tried upon various patients thyroid, thymus, pituitary body, cerebrin, testin, adrenal, etc. "Thyroid gland makes the patient decidedly worse. The use of pituitary gland in large doses quieted the patient for a time, but this is only temporary and the quieting effect I have seen produced in other cases."

The same opinion—that the disease is an endogenous toxemia—has been repeatedly expressed by other neurologists. Moebius¹⁰ in 1898, Frenkel¹¹ in 1899, Burzio¹² in 1902, the Spanish observer Jose Codina Castelv¹³ in 1903 and Lundborg¹⁴ in 1904. Schiefferdecker,¹⁵ in a recent extensive pathological report on the condition of the organs in *paralysis agitans*, points to the same condition.

Some of these writers have suggested the thyroid gland as the organ at fault; Luzzato¹⁶ in describing a case (to be mentioned again below) suggests thyroid or parathyroids as involved secondarily in the etiology (his original paper is guarded in its expressions and his meaning rather obscure), and Lundborg, whose latest paper (which I first saw some eight months after my own notion was conceived) dates from last November (*loc. cit.*), suggests precisely my own guess that the disease is due to insufficiency of the parathyroids alone. He adds that his conclusion is a clinical induction only and is confessedly "äusserst hypothetisch."

(3) Working further on this line during the past year I have found opportunity among medical friends to administer a physiologically tested gland to eleven cases of shaking palsy in all

grades of advancement. In more than half of these cases I have complete notes; it is not worth while, however, to-night to do more than summarize results.

A case of Dr. J. Ramsay Hunt's, of which I have no data except that it was an "early" one, was some six weeks later reported negative. A case in Dr. Dana's hands was much benefited. Of three patients tried by Dr. A. Alex. Smith, two reported themselves considerably improved. The third was desperately ill of suppurative complications, and refused to take the remedy but a few days. A very advanced case in Dr. F. L. Taylor's practice was distinctly benefited, though this patient had grave complications, which precluded much hope of permanent relief. A case of long standing in the care of Dr. St. G. T. Grinnan, Richmond, Va., was improved. A case in the hands of Dr. F. Peterson, of New York, and Dr. H. H. Janeway, of New Brunswick, N. J., was distinctly improved. Improvement in this case has been steadily progressive and was reported to-day by Dr. Janeway as "really extraordinary." A case of Dr. Robert Kingman, of Brooklyn, was greatly improved. Of two dispensary cases of my own one patient returned only twice after receiving the medicine, but claimed he "felt better," and certainly was visibly relieved. The other—a tailor, fifty-four years old, case of one year's duration, characteristic Parkinson tremor in left hand—was so much relieved in five weeks that he could eat with entire comfort and thread a needle with the affected hand, which he said he had been entirely unable to do since he was first attacked.

All the patients remarked upon a curious increase in courage, comfort and mental energy while taking the remedy.

There is a quantity of the gland now on the market which can be given in enormous doses without any effect whatever, and the use of which will only invite disappointment. The only effective preparation that I have been able to obtain from commercial laboratories has been from Armour & Co.¹ This preparation varies much in potency, and should not be used unless it has been tested physiologically beforehand. It degenerates rather rapidly, and should be kept on ice till used. The initial dose of the powdered gland is one-twentieth grain two to four times a day, preferably in capsule; larger doses appear to produce weakness, constipation, "nervousness," and even an exaggeration of the symptoms of the disease. The first good effects in the cases treated were noted as a rule only after fifty to seventy-five capsules had been taken—two or three weeks after beginning treatment. My supply of good gland has been very limited, and the remote effects of the remedy are still unknown.

To sum up my therapeutic results, the remedy has been more or less fairly tried on eleven cases;

¹ I have to thank Dr. Frank M. Bell, of the Armour Laboratory, Chicago, for many courtesies in this matter.

of these, nine patients were greatly benefited, a very few nearly entirely relieved of the drug.

One patient recently appeared much more perfect standing. This change induces in Parkinson's curable degeneration, ever, only an in-

the earliest of my own red but still the influence

amors, most is case were use of longer the cellular movements of an in-

(4) Certain facts of recent medical literature are of value, or at all events of curious interest.

It was noted above that in autopsies on exophthalmic goiter the parathyroids have been several times reported unaltered. Two recent autopsies on sporadic cretinism in children (Peucker¹⁷, Maresch¹⁸), very carefully reported, showed in one case *two*, in the other *four* histologically normal parathyroids lying behind the atrophied thyroid. These facts, as far as they go, would indicate that the parathyroids have no causal relation to either myxedema or Graves' disease.

At the same time Lundborg (*loc. cit.*), Moebius (*loc. cit.*), Luzzato (*loc. cit.*) and A. Gordon¹⁹ have lately reported cases of *concurrent* Parkinson's disease and myxedema, and *concurrent* Parkinson's disease and Graves' disease—the symptoms being characteristic and the diagnosis unquestioned by all who saw the patients. Of several autopsies obtained, no examination was made, unfortunately, as to the presence of the parathyroids. While other explanations are possible, it may be suggested—with due reserve—that the parathyroids were diseased or atrophied in these cases through contiguity with the diseased thyroid. It would be entirely unscientific, however, to call this more than a suggestion.

(5) The final disposal of my proposition will hang upon autopsy findings. My ill-success, in spite of earnest efforts during the past year, in securing a single post mortem on a case of Parkinson's disease, is my principal reason for reading this paper—that attention may perhaps be called to the possibilities involved, and that pathologists who have such material at hand may be induced to study and report the conditions.

Until then no one can acknowledge more frankly than myself that my hypothesis is little more than a reaching out into the dark.

Meanwhile, however, the clinical results (in a disease heretofore utterly intractable) from administration of a properly tested gland are, I think, worthy of note. When a more perfect form of medication has been devised—a hypodermic extract, or even a grafting of the gland itself from one human being to another—the results may be much more encouraging. Upon this I hope to report at greater length in future.

62 East Fifty-eighth Street.

61, 1903.

14. Lundborg (H.): Deutsche Zeitsch. f. Nervenheilkunde, 27,

1904.

15. Schiefferdecker: Deutsche Zeitsch. f. Nervenheilkunde,

25, 1903.

16. Luzzato (A. M.): Rivista Veneta di Sci. Med., XXX

1899.

17. Peucker (H.): Zeitsch. f. Heilkunde, 20, 1899.

18. Maresch (R.): Zeitsch. f. Heilkunde, 19, 1898.

19. Gordon (A.): N. Y. Med. Jour., Dec. 31, 1904.

ETIOLOGY, GROSS PATHOLOGY, SYMPTOMS AND SURGICAL TREATMENT OF PYOSALPINX.¹

BY JNO. EGERTON CANNADAY, M.D.,

OF PAINT CREEK, W. VA.;

SURGEON-IN-CHARGE, SHELTERING ARMS HOSPITAL.

IN the practice of many of us the pathological entity known as pus tube attracts possibly more attention than the much maligned appendix vermiformis. Producing as it often does acute surgery, the patient more readily feels the need of radical relief than she would were she afflicted with some of the lesser ills, whose presence constitute a discomfort rather than an immediate menace to life.

Predisposing Causes.—The predisposing causes are abortion, labor, instrumentation and manipulation, infections in neighboring organs which may reach the tubes by extension, tubal disease being rarely primary, menstrual congestion, injudicious exercise at the beginning of menstruation, taking cold during menstruation, tortuosity of the tube, retrodisplacement of the uterus, excessive coitus, acute exanthemata, visceral disease, as of the heart, lungs, liver and kidneys; constitutional disease, as syphilis, chlorosis; autotoxic states, as gout, rheumatism and cholemia. The mere fact that the vagina and vulva are usually infected is in every way favorable to uterine and tubal infection. Piltz found the vulva of the non-pregnant woman infected with pathogenic germs (excluding gonococci) in 88 per cent.; *Bacillus coli communis* in 70 per cent.; *Staphylococcus pyogenes albus* in 60 per cent. In these cases 40 to 56 per cent. had urethral infection, the ratio being constant with the vulval and vaginal infection. In pregnant women 68 per cent. have vulva infection; 32 per cent. urethral infection, while in the puerpera 100 per cent. have vulva infection and 86 per cent. have urethral infection. Being so near at hand, it is an easy matter to carry the infection from the vulva to the vagina and

¹ Read before the Virginia Medical Society, October 25, 1905, at Norfolk, Va.

endosalpingitis. An extension of the inflammation, producing pyosalpinx, seals the abdominal and perhaps the uterine ostium of the tube and results in a collection of serum, blood or pus, according to the degree of virulence of the infection and the resistance or want of resistance in the individual. The ovaries may be infected by the direct passage of pathogenic germs into an ovary rendered vulnerable by a recent rupture of a Graafian follicle or by an infected tube becoming adherent to a cystic ovary, the cyst being converted into an abscess. Purulent collections are usually associated with extensive pelvic inflammation. While small collections frequently remain in the tube, large collections usually result in rupture of the tube and the formation of abscess in the broad ligament or an encysted collection of pus in the retro-uterine space. With the advent of suppuration nature tries to bar the way to general peritoneal infection by building a Chinese wall of exclusion, a sort of barricade in the Quartier Latin. All is grist that comes in the way of this molding, cementing, gluing, plastic peritonitis, lymphatics are plugged, blood vessels thrombosed and hollow viscera and omentum joined together in whatever shape the vagaries of chance and peristalsis may have chosen to leave them. Sometimes the pelvis is entirely shut off from the abdominal peritoneal cavity by nature's policy of protection. Through adhesions of the fimbriated extremities to adjacent organs or by inversion of the fimbria into the lumen of the oviduct and adhesions of their peritoneal surfaces, the abdominal ostium of the tube becomes closed, leaving the end blunt and round, the "club-shaped" tube. In less malignant cases the fimbria may be found spread out upon the surface of the ovary and adherent thereto, causing a thickening of the ovarian tunic. The canal of the uterine end may become obliterated or stenosed through edematous and adhesive changes in the mucosa.

The tube may be strictured, folded upon itself, knotted, tortuous and distorted. It may assume the shape of a pear or other irregular object. Cystic distentions may vary in size from the little finger to a hen's egg, rarely reaching the dimensions of a fetal head. Constrictions may divide the tube into various compartments, each of which may contain a different fluid. As regards position, the tube may be normally situated at the side, or on top of the uterus, its favorite position is in the cul-de-sac, adherent to the posterior surface of the uterus. The increased weight of the tube naturally causes it to gravitate toward the bottom of the cul-de-sac. The salpinx is at first covered with fibrinous or purulent exudate, later with organized tissue and adhesions. In many cases the tube may be completely buried in plastic exudate. The muscular wall is thickened and swollen (in long-standing cases the wall may be much thinned). The mucosa may be completely destroyed and the inner surface of the tube covered with granulation tis-

sue or a pyophylactic membrane. The contents of the tube are according to the stage and nature of the infection, muco-purulent, purulent or caseous in character.

Abscesses may form in the adventitious tissue alongside of the tube—perisalpingitis abscesses. A pyosalpinx may rupture into the abdominal cavity or through adhesions into intestines and bladder, vaginal or abdominal wall with the formation of a fistula. If after the rupture of a pelvic abscess into a neighboring cavity, the abscess walls are quite elastic, the pus cavity will rapidly contract, fill up and become obliterated; if, on the other hand, its walls are comparatively hard and unyielding, it will intermittently fill up and then discharge its contents through the sinus, rarely an abscess forms in the uterine cornu. Often when the abdomen is opened, at first sense of sight or feel, the sactosalpinx and pelvic organs will have been so united by the "common ties" of adhesive inflammation that all seems as did nature in the beginning, "without form." Our esteemed countryman, Joseph Price, has aptly described the pathological female pelvis as "a mass of knots, snarls and twists of tube, bowel, uterus, adhesions," etc.

Serum and pus may collect between coils of intestine, forming so-called intraperitoneal abscesses, these are single or multiple and located in any part of the pelvis. The disease may be equally bilateral, but such seldom is the case. Small pus collections produce no displacement of the ureter, while larger ones displace outward usually, and downward rarely. These displacements are due to traction by the distended tube on the infiltrated broad ligament, and by direct pressure from the abscess itself. While rare, it is barely possible for the ovary to escape harm from the germs and toxins escaping from the tube. The continued absorption of toxins produces a marked effect on the entire body of the patient, who frequently becomes anemic and emaciated, haggard and worn in appearance, a wrecked and broken semblance of her former self. The contents of pelvic abscesses may vary in appearance from a thin puriform liquid to thick yellow matter, at times green or mixed with blood, may have a fetid odor suggestive of garlic. If the abscess and the patient last long enough and the reparative powers of the body come to the rescue sufficiently, the pus may be converted into thick caseous material known as archepyon; when this happens we may have a spontaneous cure.

Symptoms.—Symptoms are: Chill (often), pain, tenderness, elevation of temperature and prostration, the development of a sausage or other shaped mass in the pelvis (usually posterior to the uterus), discoverable by combined abdominal palpation and digital vaginal examination. By reason of mechanical interference; pain on defecation, and urination is a marked and prominent symptom, costal respiration, anxious facies, dorsal decubitus, knees drawn up

to relax abdominal muscles, to nurse and protect the inflamed pelvic viscera, abdominal rigidity which is not so marked or severe as in strictly abdominal conditions. The pain is frequently severe, at times of the paroxysmal type, and may radiate down the thighs or be confined to the back, vomiting is an occasional symptom. These symptoms increase with the increment of the disease. In the less virulent types the symptoms are milder but are as a rule quite prolonged. The symptoms naturally vary greatly according to the stage of the disease and the variety of the organism producing the infection. Burning pain made worse by pressure and intervals of comparative comfort are experienced by the sufferer. In gonococcic salpingitis there may at first be no pronounced pelvic mass. The initial passage of pus to the peritoneum is marked by peritonitis. Subsequent attacks may be as acute as the primary one, but as a rule are not. Often a case will run like this: A woman having a history of bladder disturbances, burning pain on micturition, or whites, will be suddenly seized with sharp pain in the lower abdomen (perhaps worse on one side than the other), associated with constipation, distention of the abdomen, fever, increased pulse rate and more or less prostration. In these acute attacks the pain and tenderness may be so great that little or nothing can be learned without the administration of an anesthetic. The gonococcic variety frequently subsides and remains quiescent for a time, only to burst forth anew with fresh violence. The patient's condition varies from mild invalidism to total incapacity, she feels that she is of no use to her family and burdensome to herself. The continued absorption of purulent material into the system debilitates and eventually brings the inevitable breakdown. Chronic invalidism is a natural sequence of prolonged tubal disease. The disease is often quiescent for a time, then bursts forth with fresh fury, the attack of pelvic peritonitis comes on suddenly with a chill and sharp pain. Constipation may be the result of the pain on straining at stool or of a rectal stricture due to the bulging and bridging of the rectal wall by inflammatory masses. Frequent urination may be due to the implication of bladder or ureters. Cystitis may result from extravasical pelvic infection. The pain is always increased when there is coincident ovaritis. During the monthly period the pathological congestion is supplemented by that of menstruation, hence dysmenorrhea is the rule. The more gradual the swelling, the greater will be the opportunity for the adjacent parts to adjust themselves to new surroundings and the mechanical disturbances will be lessened. The chronic case may never feel quite well. A morose and melancholy state of mind is often developed, the patient dwells perpetually in mental jungles, she never emerges from the gloomy shadows into the bright sunshine of life, she may have in addition to her physical ills a sick soul that will not be appeased. Monthly

exacerbations are common, the colica scortorum of the prostitute, impaired digestion, headache, backache, pelvic uneasiness, and vaginal discharges. Chilly sensations and sweats are common, exposure, overwork, fatigue, coitus or no apparent cause in particular may be the forerunners of repeated outbreaks of localized peritonitis. The onset may be exceedingly gradual, and of the most insidious type. In chronic cases the pulse is often good and the general condition otherwise excellent. The gait and attitude are often characteristic, a woman will be seen showing a constant tendency to place her hand over the lower abdomen, the position is a little stooped, the steps are short and mincing and to the man who sees it is plain that an exquisitely tender object is being nursed and protected from jolts and jars with the most solicitous care. Reflex symptoms will often be associated with the cerebrospinal and digestive symptoms. The streptococcic infection frequently dates from abortion, instrumentation or confinement, the onset is sudden and severe, the pulse becomes rapid, the facies is peculiar, septic poisoning is shown by the temperature, pulse, general depression and anemic condition; abdominal distention and tenderness are marked, these cases are usually bedridden from the beginning of the attack. Sudden elevation of the temperature during an attack is always a serious symptom, indicative of a marked extension of the trouble.

Rupture of the abscess in the peritoneal cavity when the pus is infectious is marked by signs of collapse followed by a rise of temperature. Sterile pus may only produce a sudden elevation of fever. The presence of pus may be detected by the observance of fluctuation transmitted through the rectum or vagina to the examining finger. A tense and stony hardness is often all that can be felt.

Treatment.—The treatment depends upon the character and extent of involvement, our aim should be the preservation of life and the restoration of health with the least possible sacrifice of the pelvic organs and disturbance of their physiologic functions. The day of sacrificial and mutilating operations without urgent indications has forever passed. Overconservatism is quite as bad as the most ultra-radical cutting and slashing. To accomplish results in these cases, we must be ever on the alert, ready to attack the insidious encroachments of disease promptly and boldly when the time is fitting. It is here as much as anywhere in the broad domain of surgery that the finer surgical sense and judgment, born of inherited traits, of acquired skill, and of ripe experience are needed. So numerous and varied are the manifestations of this hydra-headed monster that each case is a law unto itself, as regards treatment. The operator should never begin a case with a fixed determination to do any particular operation.

There will probably always be some doubt as to whether or not every acute case should be

drained in the beginning. Some, as Henrotin and others, believe in opening up the cul-de-sac in all acute cases, in working well up into any abscess forming localities on the sides and posterior wall of the uterus and inserting plenty of plain or iodoform gauze drainage. This procedure has a very low mortality and is productive of most excellent results. A large number without any very pointed reasons prefer to wait in all acute cases until the active inflammatory process has ceased. The vaginal route in the acute stage is infinitely to be preferred. By its use we avoid breaking down the barriers nature has so strenuously and hastily built to protect the general peritoneal cavity.

After the formation and localization of pus in appreciable quantities there is a stringent indication to remove it. This can be done per vaginam with absolute safety to the patient, when accomplished by the abdominal route even by the best hands there is a considerable element of danger. However, chronic cases will not as a rule make complete recoveries without enucleation of the sactosalpinx. In the process of enucleation of a pelvic abscess the utmost care should be taken to prevent the soiling of the operative field by pus. By the aspiration of abscesses, by the use of judiciously placed gauze towels, by careful dissecting and sponging, much can be done to prevent such contamination. The distortion and general confusion of the organs and tissues may be most bewildering. Often but little can be ascertained by the sense of sight. In such cases the best eye is that one on the end of the finger, the educated finger that not only feels but sees and thinks in a judicious manner. The body and top of the uterus is a central landmark which must be sought out and from that point the natural lines of cleavage may be found. Adhesions must be gently separated by a to-and-fro motion of the fingers, by careful sponging, by pinching or by cutting those more dense. Whenever it is possible to leave an ovary or tube in whole or in part, do so. You will save to the woman the natural function of the ovary and probably the opportunities of conception and motherhood. The utmost conservatism of function and structure should ever be the surgeon's guiding star.

All intestinal injuries must be repaired. So far as possible cover all raw surfaces with peritoneum for the prevention of new adhesions. Bleeding points should be looked after with care. Use catgut for sutures and ligatures. A heavy piece of silk about a pedicle will often act as a foreign body and pave the way to future trouble. Do not ligate ovaries, tubes, etc., en masse, leaving a large necrotic stump for nature to look after. Dissect out the uterine ends of the tubes even into the uterine cornua, ligate the ovarian vessels and close the wound by suture. Drain all seriously infected cases operated on abdominally by way of the posterior vaginal fornix. Either arrange the drains in the cul-de-sac before closing the abdominal wall, then cleanse the va-

gina, draw the cervix forward and upward with a volsellum while the operator readily cuts down on the previously placed drain (Haggard), or incise the vaginal fornix on the finger of an assistant, the rectum being protected by the previous insertion of the operator's gloved finger. Drainage should be plentiful and should remain in situ at least a week, after which it can usually be removed with ease.

At times the density and widespread character of the adhesions contraindicate any attempt at removal. Every surgeon of experience will remove organs at a later stage of his career which earlier he would not have dared undertake. Tait in his work was not deterred even by the necessity of opening bowel or bladder. Whenever septic intoxication appears operation is at once advisable. In acute cases time spent in removing lymph flakes or fibrinous deposits from the bowel or in the separation of adhesions is worse than wasted, it may open up new avenues for infection, produce new adhesions and may mean the death of the patient. Free drainage is the key-note in these acute processes. The vaginal drain is superior to any other for the reason that its drainage is favored by gravity, the abdominal cavity is not in such danger of being contaminated and the possibility of hernia is practically nil. In those who are very ill the vaginal method of evacuating the pus is the only one permissible, a secondary operation for the removal of diseased uterine adnexæ can be performed under more favorable auspices later. Active surgical interference should be the rule in nearly all cases. Vaginal evacuation is the simplest plan of treatment for abscess cases and entails few risks to life. A small opening should be made with sharp-pointed scissors (avoiding the uterine arteries, rectum and ureters), this should be dilated, the finger introduced and a careful search made for secondary abscess cavities, which, if found, should be opened and gauze drainage inserted. In these cases the drains should be removed every day or two, the cavity irrigated and new drainage inserted. While the vaginal route is the one of choice for drainage and evacuation of pus, the present trend of gynecologic surgery is toward the abdominal route as a routine for purposes of enucleation.

Hysterectomy with complete extirpation of the ovaries and tubes is at times indicated, viz., when previous conservative efforts have failed, when the uterus is buried beneath masses of adhesions, badly involved in inflammatory products, when there is probably an incurable metritis, when the uterus contains myomata and in cancer of the body or cervix, while the removal of the organs en masse completely removes all foci of infection, the operation dangers are greater and many neuropathic phenomena may supervene. An unusual effort should be made, especially in young women, to preserve to them the possibilities of conception and motherhood and to obviate the distressing sequelæ of an artificial

menopause. In such cases we may count largely on the natural restorative powers of youth and endeavor to assist nature by resections and plastic operations to restore a *restitutio ad integrum*. After the end results of pus tube have been reached the conditions are often favorable as regards a cure for sterility. In cases where there is a possible future hope for a functioning tube, split open a club-ended tube, straighten out the fimbriæ or suture the delicate mucous lining to the peritoneal covering to ensure the potency of the tube, loosen adhesions whenever practicable in order to release the tube from tortuous and restricting positions.

Report of Cases.—I have enucleated thirty-eight consecutive cases of pus tube without a single death. A number of these were drained per vaginam and two through the abdominal wall. In most cases if pus escaped in the pelvis it was carefully sponged away. Only one case was irrigated and her convalescence was especially stormy. In one case, coming to the hospital in *extremis*, I opened a large abscess per vaginam and she died the day after. Many of these cases had been neglected for a long time and were in correspondingly bad condition. When the lower pelvis was full of pus vaginal drainage was always used. Sometimes the cul-de-sac was opened after the abdominal wound had been closed, as advised by Haggard, but as a rule this was done while the operator's hand was yet in the abdomen. The bowels were completely emptied before operation, and no attempt was made to secure purgation for several days after. A scant liquid diet, non-putrefactive in character, was used during the immediate post-operative period. So far as I have been able to trace my cases there has been no recurrence of the trouble. In all old cases where I have only had the end results of tubal infection to deal with, I have invariably done plastic work with the hope that the mechanical and physiological functions of tube and ovary might be restored.

Summary.—Chill, fever and sweats run riot, and in the acute stages the general systemic disturbances are pronounced. Nagging pain and general malnutrition are characteristic features of the chronic types. A careful study of symptoms makes diagnosis easy. The importance of gonorrhea as an etiologic factor is due to the great frequency of that disease and to the rarity of cures in the male. The protective conservation of plastic peritonitis and the systemic and generally depressing effects of the disease are marked features. While complete enucleation and vaginal drainage are not by any manner of means advocated as routine measures, the final results of those procedures are excellent, there is seldom a recurrence of the trouble and if the work is carefully and skilfully done the mortality is low.

I wish to call particular attention to the value of plastic surgery in the treatment of the end results of pelvic peritonitis.

BIBLIOGRAPHY.

- Anspach, B. M., N. Y. Med. Journal, March 25, 1905.
 Anspach, B. M., N. Y. Med. Journal and Phila. Med. Journal, March 25, 1905.
 Aquaviva and Roux de Brignolles, Revue de Chirurgie, January, 1903.
 Baldy, J. M., American Medicine, April 16, 1904.
 Beyea, H. D., American Text-Book Pathology, ed. by Ludwig Hectoen and David Reisman, 1902.
 Bishop, E. S., Lancet, September 19, 1904.
 Bloodgood, J. C., International Clinics, Vol. I, Series XV.
 Borchardt, L., Deutsche med. Wochenschrift, XXX, No. 49.
 Brickner, Walter M., The Surgical Assistant, 1905.
 Brothers, Abram, MEDICAL NEWS, New York.
 Brown, G. S., Alabama Medical Journal, December, 1904.
 Butler, Glentworth Reeve, Diagnostics of Internal Medicine.
 Cannaday, J. E., New York Medical Journal and Phila. Med. Journal, August 26, 1905.
 Cannaday, J. E., Old Dominion Jour. Medicine and Surg., April, 1905.
 Coc, W. H., New York Medical Record, February 25, 1905.
 Coffey, R. C., Annals of Surgery, October, 1903.
 Corner, E. M., London Practitioner, August, 1905.
 Deaver, John B., American Gynec., New York, March, 1903.
 Dudley, E. C. and C. Von Bachele, Year-Book of Gynecology, 1905.
 Dudley, E. C., Principles and Practice of Gynecology.
 Dudley, A. Palmer, Journal A. M. A., December 19, 1903.
 Dunning, L. H., New York Medical Record, July 22, 1904.
 Dunning, L. H., New York Medical Record, September 26, 1903.
 Dutzman, Centralblatt für Gynäkologie, No. 12, 1904.
 Elbrecht, O. H., Medical Record, New York, September 30, 1905.
 Goffe, J. Riddle, New York Med. Jour. and Phila. Med. Jour., August 26, 1905.
 Grad, H., New York Medical Record, June 3, 1905.
 Herman, G. Ernest, British Medical Journal, October 22, 1904.
 Hirst, Barton Cooke, Text-Book on Obstetrics.
 Hirst, Barton Cooke, Text-Book on Gynecology.
 Holt, L. Emmett, American Journal Obstetrics, 1905.
 Johnson, Joseph T., American Journal Obstetrics, New York, February, 1904.
 Kelly, W. D., New York Medical Record, July 22, 1905.
 Lewis, Denslow, New York Medical Record, Sept. 30, 1905.
 Lizcano, D. P., Siglo Medico, Madrid, April 22, 1905.
 Manley, Thos. H., Internat. Jour. Surg., New York, August, 1903.
 Mann, Matthew D., American Gynec., July, 1903.
 Mendoza, A. Suarez de, Centralblatt für Gynäkologie, No. 5, 1905.
 Miller, G. Brown, Virginia Medical Semimonthly, December 23, 1905.
 Montgomery, E. E., System of Practical Therap., ed. by H. A. Hare, 1901.
 McCaskey, G. W., American Journal of the Medical Sciences, November, 1904.
 McEvitt, John Cowell, Brooklyn Medical Journal, December, 1902.
 McNamara, S. J., Brooklyn Medical Journal.
 Neuman, F., Wiener klinische Wochenschrift, Vol. XVIII, No. 42.
 Nichols, Albert G., American Text-Book Pathology, ed. by Ludwig Hectoen and David Reisman, 1902.
 Noble, Chas. P., American Gynec., July, 1903.
 Peterson, Reuben, American Journal Obstetrics, July, 1904.
 Piltz, Centralblatt für Gynäkologie, No. 17, 1904.
 Polak, John O., Brooklyn Medical Journal.
 Pozzi, S., Treatise on Gynecology.
 Pryor, W. R., New York Med. Jour., Aug. 22, 1903.
 Robb, Hunter, American Journal Obstetrics, New York, December, 1905.
 Royster, H. A., Carolina Medical Journal, September, 1903.
 Schiller, Heliodor, Chicago Medical Recorder, November, 1904.
 Sellheim, H., Beiträge z. Geb. und Gynäkologie (Hegar's, VIII, No. 3).
 Thielhaber, A., Münchener medizinische Wochenschrift, LII, No. 2.
 Thielhaber, A., Münchener Literatur, No. 2, January 10, 1902.
 Tuffier, Th., Presse Médicale, No. 89, 1904.
 Turck, Raymond C., Medical Standard, Chicago, Ill., May, 1903.
 Upshur, J. N., New York Medical Journal, September 23, 1905.
 Vance, James, Louisville Med. and Surg. Journal, October, 1903.
 Waldo, Ralph, Internat. Journal Surg., April, 1903.
 Warbasse, J. P., MEDICAL NEWS, New York, September 23, 1905.
 Waite, Lucy, New York Med. Jour. and Phila. Med. Jour., August 19, 1905.
 Waring, H. J., Manual of Operative Surgery.
 Watkins, Thos. J., Surgery, Gynecology and Obstetrics, August, 1905.
 Watkins, Thos. J., Illinois Medical Journal, Springfield, Jan., 1903.
 Webster, J. C., Illinois Medical Journal, April, 1904.
 West, James N., New York Medical Record, June 24, 1905.
 Wetherill, H. G., Colorado Medical Journal, February, 1904.
 Young, E. B., Boston Medical and Surgical Journal, February 16, 1905.
 Ziegler, Ernest, General Pathology, American Text-Book of Surgery.
 Zeddovitch, J. B., Russky Vrach, III, No. 2.

HEADACHE.

BY JOHN N. UPSHUR, M.D.,

OF RICHMOND, VA.;

EX-PRESIDENT AND HONORARY FELLOW OF THE STATE MEDICAL SOCIETY OF VIRGINIA, AND OF THE TRI-STATE MEDICAL ASSOCIATION OF THE CAROLINAS AND VIRGINIA, ETC.

At first sight it would seem that the discussion of so trite a subject as headache would demand an apology for the time consumed. But a moment's reflection will call to mind the fact that there are few symptoms with which we are called to deal which prove more vexatious and often more intractable and unresponsive to remedies. Not only is this true, but the multitude of remedies, proprietary and quack, which are used by the laity empirically, and without consulting a physician, and without a competent appreciation of the cause, and often with most harmful results of injury to health or the engrafting a drug habit. Nor can all the members of the profession plead "not guilty" to the use of these agents, or to a lack of appreciation of or discrimination of the cause. It is my desire in discussing this symptom to call attention to the causation of headache in all its phases, and to urge a careful analysis of the conditions back of it, and the use of a rational therapy in its treatment. I grant you that often the causes are difficult or impossible of recognition, and that we are forced in a measure to empiricism. But the locality of the pain, the question of its centric or excentric origin, the nature of its reflex, and the question of the pathologic condition outside of or within the nervous system are the problems demanding solution for its rational relief. That not infrequently the headache persists when we have located the cause, in spite of all we do, there being simply amelioration periods, and then periods of intense exacerbation, is a fact we must face, as though a habit difficult of eradication had been formed. These are the cases which stand in such jeopardy of having a drug habit, of cocaine, morphine, chloroform, acetanilid, or some other harmful agent, engrafted upon them, and which should keep us alert to avoid and prevent such an untoward accident. I think we scarcely appreciate the wholesale and harmful use of so-called headache remedies used by the laity empirically. One wholesale house handles twelve of these preparations, and I am told that the proprietor of one of them sells over *half a million dollars worth annually*. I am also informed that one of the largest pharmacal firms in the United States handles seventy-five preparations and that acetanilid is the basic constituent of most of these preparations. Some of these formulæ are dispensed in the form of effervescent salts and some in tablet form. In the number of the *Journal of the American Medical Association*, June 3, 1905, appeared an article on "Chronic Acetanilid Poisoning," by Dr. D. D. Stewart, of Philadelphia; every medical man should read that article and ponder over it to his profit. Remember that the

taking of these headache remedies by the laity is a habit, a *drug habit*, and when we understand and appreciate how depressant they are on the heart, how the basis acetanilid damages the integrity of the blood cells, we realize how nutrition is impaired and the foundation laid for more serious maladies, especially of the nervous system. I have specified acetanilid because it is most used, but the statement should be broader and should include all of the coal-tar preparations. Dr. Stewart's observations and the blood tests made by Dr. Ghrysky show chocolate color of the blood and granular degeneration of the red blood globules. "The symptoms of severe chronic poisoning from acetanilid and kindred coal-tar derivatives show progressive mental and physical debility, cardiac weakness more or less pronounced, cyanosis, characteristic blood changes indicative of the pernicious action of a hemolytic agent." It is not necessary to quote farther, but the significant question arises as to how far these agents may be causative in the production of mental disease. Anodynes with acetanilid as a basis are used in insane hospitals; how much do they contribute to the physical depression and interfere with nerve nutrition which tends to make these cases incurable? In view of these facts it behooves us to utter a note of warning, and so far as the prescribing of these preparations is recklessly done, and I believe it is widespread, to call a halt, and exercise greater care in the future than has been done in the past.

The headache from eye-strain is situated over the brow, and is persistent in character, extending in aggravated cases to the top of the head. The most distressing feature is its persistency rather than acuteness. The sufferer has a clean tongue, and the organs all seem to be performing their functions normally. Only temporary relief, or no relief, comes from drugs, and the headache is intensified by using the eyes. The remedy is plain—properly adjusted glasses and the persistent and continuous wearing of them—relief will not come if they are worn spasmodically. If headache is due to nasal lesion, the pain is more neuralgic in character, and inspection of the nasal cavities reveals more or less inflammatory condition, enlarged turbinate, spurs, etc. The treatment for its relief is plainly indicated in the cure of the local condition. The feeling of tension and pain due to inflammation of the frontal and other nasal sinuses which we see in acute coryza, points to such general medication as will cure the cold. General malaise and aching in the limbs is a common accompaniment. Neuralgic headache is regional and spasmodic, and much more acute than headache from other causes. The most frequent form of headache with which we have to deal, is digestive. Disordered digestion, acute or chronic, developing excessive acidity. The pain is diffused over the vault of the cranium, being most intense over the brow, gives a sense of tension and throbs most distressingly and is

¹ Presented to the State Medical Society of Virginia, at its meeting in Norfolk, October 12, 1905.

sometimes very acute. Occasionally a sense of dizziness will be present and some acid eructation. No remedy is more prompt in relieving this form of headache than a simple emetic. The intense headache from constipation is a familiar condition, relieved by a free purgative and cured by systematic regulation of the bowels. This should be done not by the injudicious administration of drugs, but by a proper regulation of diet, and such therapy only as tends to arouse and develop a healthy tone in the alimentary canal, not omitting as most important, the ques-

tion of habit in going to stool at a regular time. One important factor in this respect is to insure that torpidity of the liver is overcome, and that proper and healthful secretion of bile ensues. The liver is the great crematory of the body for the burning off and elimination of waste products. When the liver is derelict, headache is dull and situated in the occiput.

The kidneys have no less an important function. We see a dull, wearing headache diffuse over the whole cranium, in the early stages of Bright's disease, with more or less tendency to drowsiness, accompanied by a scanty secretion of urine; indications for palliation and relief are few. The headache of lithemia is often dependent upon deficient renal secretion. In its acute forms, it is located in the temporal region, most commonly the left, the eyeball feels sore to the touch, and when it moves in the orbit; the extreme it extends to the vault of the cranium. The indications for treatment are along dietetic lines, abundant exercise, and an improved general hygiene. There can be no uniform treatment, for people differ, sometimes in their susceptibility to gouty development, and in articles of food, what produces gouty products in one person being perfectly innocuous to another, and even differing at different times in the same individual. One of the most common causes of reflex headache is from uter-

manded. In the second, often the administration of a mercurial purgative a day or two before the establishment of the period will much ameliorate or prevent the attack. In both instances it is not uncommon to have distressing nausea prominent as another symptom of the reflex. The clavus hystericus located in the parietal region, and oftenest on the left side, is one of the intractable forms of headache; the area of pain is limited. Relief comes from cure of the local uterine condition from which the reflex comes. I have seen these reflex headaches so intense as to necessitate full hypodermic exhibition of morphine, required to make the pain endurable, and I have repeatedly been able to trace the onset of the headache to fatigue, due to unusual exertion of some kind on the eve of the beginning of the flow. A headache, characterized by fulness, sense of tension, feeling of weight on vault of cranium, and a condition of unusual nervous irritation, is common during the climacteric. The cause of this headache may be, and often is, a mixed condition; not only is it due to an attempt of nature to restore the equilibrium of the vascular and nervous systems, but often as well of gouty conditions, when the periodic discharge of blood from the uterus stops or is irregular, one of the avenues of elimination of uric acid and other effete gouty products from the system is cut off, and the general system suffers from the retention in the blood of the resulting toxins. Abundant exercise, a careful dietary, and well-ordered hygiene, are the indications for relief. At middle life, when every energy is bent on business, or when the trials and worries of domestic life beset, there comes a condition of depression, the individual is "below par" without appreciation of the fact. Any nervous strain may develop most acute headache, intractable and chronic in its course. This headache of neurasthenia is similar to the clavus hystericus in a sense; it is lo-

cal, and its sources, like the hysteric, are local. The form of headache is best described as a dull, aching, or throbbing, extending over a period of time, and is associated with that general condition of the body, and with such local brown or dusky spots, and a general lesion of the endothelium of the vessels. The form of headache is best described as extending down the back part of the head, over the vault of the cranium, and at the beginning of the period of menstruation it is often a throbbing, and there is a sense of pressure, and the patient is unusually sensitive to noise, light, or cold, comes with the flow of the menses, and it is usually of a good yellow color. Excessive congestion of the vessels of the uterus is the pathology of these cases. The treatment is the same as of headache 3, mainly of a local nature, but, positive treatment is curative. Harris, Dr. Davidson and Churchill

have all described this form of headache, and have given the same treatment. Harris, in his "Diseases of Women," describes it as a "menstrual headache," and says it is "characterized by a dull, aching, or throbbing pain, extending over a period of time, and is associated with that general condition of the body, and with such local brown or dusky spots, and a general lesion of the endothelium of the vessels." He says the form of headache is best described as extending down the back part of the head, over the vault of the cranium, and at the beginning of the period of menstruation it is often a throbbing, and there is a sense of pressure, and the patient is unusually sensitive to noise, light, or cold, comes with the flow of the menses, and it is usually of a good yellow color. Excessive congestion of the vessels of the uterus is the pathology of these cases. The treatment is the same as of headache 3, mainly of a local nature, but, positive treatment is curative. Harris, Dr. Davidson and Churchill

than any coming from reflex causes. It suggests usually lesions incurable in their nature and indicated by other grave symptoms, mental hebetude is prominent in these cases, there may develop conditions of aphasia, perverted sensations in the trunk or limbs, alteration or aberration of one or more of the special senses, ultimately developing some form of paresis. The pain of organic disease may be most acute or it may be dull; there may be exacerbations, and remissions, but its marked symptom is its persistency. We do not know in what tissue of the cranium the pain is located. In meningitis the pain is more acute, sensory nerve fibers have been traced to the pia mater. The location of the pain may be over the lesion producing it, or it may be remote, as in frontal headache, when the lesion is located in the cerebellum. Morbid sensations, such as formication, pressure, weight, are seldom present when the headache is due to organic lesion. Commonly associated with the headache of organic lesion are vomiting and optic neuritis as specially important.

Headache from various blood conditions is very common. The outcry of the nervous system for more nutrition in cases of anemia, pain in the head, persistent, but not intense, extending all over the cranium, and disappearing finally when the condition of the blood is improved.

The specific headache of syphilis is intense, boring in character, and nocturnal in period of occurrence; the history of syphilis aids materially the diagnosis. It may be due to bone caries, or the development of gummata; in the former the boring character of the pain points to the bone involvement; in the latter, and they have sufficiently matured, we have evidence of irregular paresis. Some persons have drug idiosyncrasies, and certain drugs always produce much discomfort from this symptom. In some cases pushing the drug, tolerance becomes established, but in others we are forced to withdraw it. Iron is a notable example of this condition. This is too vast a subject to be covered in the compass of such a paper as this, but I have accomplished the purpose of its creation if it does two things: First, to impress on my hearers the necessity of careful discriminating diagnosis before prescribing for this very common symptom, and secondly, of my warning as to the empirical use of unknown headache remedies by both the profession and the laity be heeded and acted on.

Value of Auscultatory Percussion.—W. WOLFF (*Wien. klin-therap. Woch.*, Sept. 17, 1905) has compared the results obtained with auscultatory percussion with those of ordinary percussion, and finds that the method is at best very inaccurate. In the majority of cases, however, the left border of the heart could be determined, and the method may therefore be of real value in emphysema and in right-sided exudative pleurisy. For routine examinations, however, it should be condemned.

STUDIES IN AGGLUTINATION IN TUBERCULOSIS.¹

BY MAZYCK P. RAVENEL, M.D.,

AND

H. R. M. LANDIS, M.D.,

OF PHILADELPHIA.

THE present studies in agglutination were instituted for the purpose of determining whether the reaction was of any prognostic significance in tuberculosis, and also to determine whether the resistance of the individual was increased by the hygienic and dietetic means now employed.

It is not necessary at the present time to discuss the various hypotheses concerning the phenomenon of agglutination. It is pretty generally accepted that whereas the phenomenon is not always present in the blood of immunized animals, when it is present it is an indication that the blood of such an animal has a detrimental effect on the growth and vitality of the specific micro-organism, and thus is in some way allied with the process of immunization. It is also assumed that the higher the agglutinating power the greater is the degree of immunization.

From a limited experience with the reaction as a diagnostic agent we do not believe that it is available, as we obtained it in healthy individuals.

The cases we have studied may be divided into three groups: (1) Those in which Maragliano's serum was administered; (2) those with advanced disease, most of them in the terminal stages; and (3) those under treatment at the White Haven Sanatorium from four months to one year. This group consists of incipient cases with two exceptions, one being moderately advanced, the other far advanced.

The five cases in which Maragliano's serum was administered were all suffering from advanced disease and had ceased to improve under the usual dietetic and hygienic measures.

While admitting that they were cases unsuitable for the serum they were selected for the purpose of seeing what results could be obtained by its use. Three of these patients were confined to their beds; two were ambulant cases. In the two ambulant cases the test was made after the first few injections and again repeated after several months had elapsed. In one it remained unchanged; in the other it increased from from 1-10 up to 1-20.

The three bed cases, all of them with extensive disease, were tested after a number of injections of serum had been made. Two agglutinated 1-30, although the diazo reaction was present; the other agglutinated 1-50.

In fifty-nine cases with advanced disease, from the wards of the Phipps Institute, the following results were obtained:

30 agglutinated.....	1-10
18 agglutinated.....	1-15
1 agglutinated.....	1-25
1 agglutinated.....	1-30

¹ From the Laboratory of the Henry Phipps Institute.
² Read at the meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 19, 1905.

In striking contrast to these are the cases from the White Haven Sanatorium. Of nineteen cases in which the test was made the following results were obtained:

1 agglutinated	I-10
1 agglutinated.....	I-15
6 agglutinated.....	I-20
9 agglutinated.....	I-25
1 agglutinated.....	I-30

Forty-eight of fifty-nine advanced cases did not agglutinate above I-15, while sixteen of nineteen cases at the sanatorium, under treatment from four months to one year, agglutinated at I-20 or higher.

It is, furthermore, of interest to note that the one incipient case which agglutinated at I-10 only has severe constitutional manifestations with slight pulmonary involvement. A favorable outcome in this case is doubtful, irrespective of the agglutination test.

The diazo reaction was tested for in forty-six of the fifty-nine advanced cases; in thirteen it was present, in thirty-three absent. The diazo reaction was never present when the agglutination was above I-15; on the other hand, it was absent in twenty-six instances when the agglutination was I-15 or lower. In eight of the fifty-nine advanced cases the patients have died since these observations were made; only one of the eight agglutinated up to I-20.

The technic employed was as follows: From 5 c.c. to 10 c.c. of blood was drawn from a vein at the bend of the elbow. The blood was allowed to stand for twenty-four hours, when the serum was drawn off and dilutions made with a homogeneous culture of tubercle bacillus in proportions of I-5 up to I-100. The homogeneous culture was grown from twelve to fourteen days in 5 per cent. glycerin-bouillon, then formalin was added in the proportion of I-1,000. The tubes containing the culture and serum were observed every two or three hours, but the final reading was made at the end of twenty-four hours. A positive result consisted in a clearing of the supernatant fluid, or the agglutination of small whitish clumps, usually at the bottom, but occasionally along the sides of the tube.

From this study we believe that the following conclusions may be drawn:

1. That the agglutination test is not available for diagnostic purposes.
2. The more advanced the disease the lower is the agglutinating power.
3. A low agglutination is of unfavorable prognostic significance.
4. That cases under favorable conditions, as at a sanatorium, have the agglutinating power distinctly increased.

Tuberculosis Exhibit.—The Tuberculosis Exhibit is now open at the American Museum of Natural History, and every medical man of the community should urge his clientele to visit it, not once, but often.

THE SUBSTITUTION OF DRUGS IN THE DISPENSING OF THE PHYSICIAN'S PRESCRIPTION.¹

BY WILLIAM J. CRUIKSHANK, M.D.,

OF BROOKLYN, N. Y.

(Continued from Page 1030.)

The following are brief extracts from some of the literature which has been contributed regarding the application of heroin as a therapeutic agent, and are quoted for the purpose of showing the advantages obtained in its clinical application over morphine and its salts.

Prof. John North, Toledo, O. (*American Medical Compend*, June, 1899): "I have given it (heroin) to both young and old, and have not had an unpleasant symptom arise. It does not produce the disagreeable nausea and vomiting effect that morphine does."

Prof. Max Einhorn, of New York (*Philadelphia Medical Journal*, Oct. 28, 1899): "Except slight dizziness and occasional dryness in the throat, which I found but rarely, I have never seen any unpleasant symptoms even from a prolonged use of heroin."

Dr. Charles Herwisch, Philadelphia, Pa. (*Therapeutic Gazette*, Nov. 15, 1899): "No headache or disorders of the stomach resulted from the use of heroin, as is often the case with morphine."

Dr. B. D. Gillies, Montreal, Canada (*Montreal Medical Journal*, June, 1901): "On the digestive system in medicinal doses after repeated administration, heroin causes dryness of the pharynx and slight irritation of the fauces. There is no disturbance of the stomach, the appetite remaining unimpaired."

Dr. S. A. Johnson, Nevada, Mo. (*Kansas City Medical Record*, May, 1901): "Heroin acts in a much smaller dose than morphine, is free from any depressing tendency, and is much less liable to produce constipation or other disturbances of the gastro-intestinal tract."

Drs. J. Pawinski and Z. Adelt (*Die Heilkunde*, January, 1901): "We failed to note any unfavorable influence upon the digestive tract. Heroin does not diminish the appetite nor impair the digestion, and does not produce vomiting or constipation."

Dr. E. Y. Johnson, Louisville, Ky. (*American Practitioner and News*, December, 1901): "It (heroin) has all or even more of the pain-relieving qualities of morphine, but none of its bad effects. Except in rare cases of idiosyncrasy, it does not constipate, does not diminish the urinary secretion, does not cause sick stomach, and last and most important of all, does not cause a habit of using it."

Prof. J. B. McGee, Cleveland, Ohio (*Cleveland Journal of Medicine*, June, 1900): "It is more certain and uniform than codeine, safer and less disagreeable than morphine, and, unlike

¹ Some remarks on the general subject, together with an examination of a legal opinion handed down by the Hon. William J. Gaynor, one of the Justices of the Supreme Court of the State of New York, in the case of *Laturen vs. The Bolton Drug Company*.

the latter, is said to stimulate rather than depress the respiratory center."

Dr. A. L. Leatherman, Indianapolis, Ind. (*Carolina Medical Journal*, March, 1902): "The disturbances of the stomach are practically nil, and the depressing effects, if present, are slight."

In discussing his experience with heroin in one thousand cases, Dr. I. I. Grinewitsch (*Medical Review of Reviews*, July 25, 1902) states: "Heroin is to be preferred to morphine, as unpleasant by-effects are less frequent and are less marked."

Dr. T. W. Keown, Baltimore, Md. (*Carolina Medical Journal*, March, 1901): "The greatest number of cases in which I have used heroin has been among consumptives, and here I find its analgesic and hypnotic effects combined with the maintenance of digestion (there being no nausea, no vomiting, and no disturbance of digestion generally) by the aid of general tonics to be of the greatest value; it is almost entirely prescribed in St. Agnes' Hospital for all cases of this kind, and is much preferred to morphine and codeine in similar cases for obvious reasons."

Dr. G. W. Wood, Washington, D. C. (*Cincinnati Lancet-Clinic*, Nov. 16, 1901: "In no case have I noticed any digestive disturbances from its administration nor any tendency to the formation of a heroin habit."

Dr. H. W. Syers, Great Northern Central Hospital, England (*Medical Times and Hospital Gazette*, Sept. 13, 1902): "But I am bound to say that, so far as my experience goes, I have not met with a single case of phthisis in which heroin has acted in an undesirable manner. I have not noticed any tendency to loss of appetite and nausea, and none to headache or constipation as resulting from the employment of the drug."

Dr. Samuel A. Gluck, Brooklyn, N. Y. (*Medical Review of Reviews*, Oct. 25, 1901: "By the employment of heroin hydrochloride in place of heroin we obviate any chance of the drug producing nausea or vomiting, which has been observed in a few instances in which gastric disturbances were already present. I find that the drug can be used for long periods without any of the objectionable effects of morphine in all respiratory affections attended with cough or a spasmodic condition."

Prof. Samuel G. Dabney, Louisville, Ky. (*Louisville Monthly Journal of Medicine and Surgery*, September, 1903), in reporting his own case of appendicitis, remarks as follows: "The heroin produced a delightful sense of general well-being, and this was followed by refreshing sleep without subsequent nausea. On two occasions I had previously been given a hypodermic of morphine. It eased the pain from an abscess at the root of my tooth and made me sleep, but the next morning I thought I would 'throw up my immortal soul,' as Mark Twain said he did, after taking all the remedies that were suggested to him for a cold. Heroin had no such bad effects."

Continuing, the learned Justice says: "And there was no evidence whatever in the case that one-tenth of a grain of morphine in a dose taken every four hours could cause morphine poisoning. On the contrary, the uncontradicted evidence is that it could not do so, but that one-fifth of a grain increased to one-fourth of a grain every hour would be usual and entirely safe; whereas the plaintiff's dose was only one-tenth of a grain every four hours, and she took only four doses. When we consider that morphine is not a cumulative poison, but that no effects of a dose of one-tenth of a grain, or even of a much larger dose, would remain in four hours after it was taken, we perceive the entire lack of foundation to the claim put forward for this plaintiff that she was poisoned by morphine."

"On this state of evidence, it did not seem to me that there was any evidence on which the jury could be permitted to find the plaintiff was poisoned by an overdose of morphine, and I therefore dismissed the case. It was not for the jury to guess—the fact had to be proved. I would now grant a new trial and send the case to a jury did I not remain of the same opinion. Moreover, I believe that a court may take judicial notice of the scientific fact that one-tenth of a grain of morphine taken every four hours could not have poisoned the plaintiff."

The evidence in the case showed conclusively that the plaintiff had suffered from opium poisoning. The attending physician swore positively that he found her suffering from this condition, at the same time describing to the Court her symptoms.

The "uncontradicted evidence" to which the learned Court refers, is that of Mr. Wilson, the manager of the defendant company's store. It was this same Wilson who had dispensed the substituted preparation. His testimony as an expert was admitted over legal exception taken by the plaintiff's counsel, who elicited the fact on his cross-examination that the witness was not qualified in any way to testify as an expert upon the subjects concerning which the learned Court claimed for him the proper competency.

If there could be any doubt on the proposition that the witness was ignorant of therapeutics and toxicology, his testimony, as recorded in the stenographic minutes of the trial, will prove the truth of this assertion. Its admission, as expert opinion, is a satire on medical jurisprudence, and is one of the most remarkable exhibitions of farcical judicial ruling ever witnessed in a court of justice. Any physician who would testify that the administration of doses of one-fifth to one-fourth of a grain of morphine acetate every hour to "every adult" or "any adult" is a perfectly safe method of handling this drug, would leave himself open to the ridicule of the entire medical profession, and if he acted on the suggestion contained in such testimony he would be guilty of malpractice.

Every experienced physician recognizes the

fact that there *can* be no specific rule regarding the dose of opium or morphine to be administered in every case. He knows that there are persons who cannot take the smallest quantity without the possibility of serious results following its administration. On the other hand, there are those who can take comparatively large doses with little or no inconvenience. The amount of this drug to be administered to a patient must be decided by the attending physician in every instance at the time of its administration. In deciding this question he must take into consideration the pathological condition with which he is dealing, together with the age, habit, tolerance, and idiosyncratic tendencies of the person to whom the drug is to be given. All of these conditions materially affect each person's susceptibility to the action of drugs.

"Occasionally persons are found who manifest a remarkable natural tolerance of the action of certain poisons that is wholly independent of habituation. The author is acquainted with a physician who, although entirely unaccustomed to its use, is able to take a grain of the sulphate of morphine without the production of the slightest apparent effect. Christison relates a similar but even more remarkable case of a man unaccustomed to the use of opium who took nearly one ounce of laudanum without any effect. Many other illustrations of similar tolerance are on record. No explanation as yet has been offered of this phenomenon."—Peterson and Haines, Vol. II, Page 305.

I have myself administered with beneficial results to a patient suffering from so-called idiopathic, acute general peritonitis, as much as seventy to eighty grains of opium in twenty-four hours. I have also seen one-fourth of a grain of codeine administered for the relief of a trigeminal neuralgia produce grave narcotic symptoms in an otherwise healthy adult. Opium is at all times a dangerous drug. It should never be administered in repeated doses except on the advice of a physician, who is in a position cautiously to watch its effects. The number of cases of acute opium poisoning which are recorded from the administration of small doses is very large. Accumulated medical testimony on this subject may be said to point the finger of grave concern at that part of Mr. Justice Gwynor's opinion which attempts to deal with the question of the safe administration of opium to the plaintiff in this action.

Practically the learned Justice holds: First—That morphine or opium may not act as a cumulative poison. Second—That no effects of one-tenth of a grain of morphine or "even a much larger dose" could be observed after the lapse of four hours from the time of the administration of such a dose. Third—That a court may take judicial notice of the scientific fact that one-tenth of a grain of morphine administered every four hours could not produce opium or morphine poisoning.

Let us now compare briefly the language of the learned Court on these three questions with competent medicolegal authority.

First, as to the cumulative power of opium. On page 479 of the work entitled "Poisons—In Relation to Medical Jurisprudence and Medicine," by Alfred S. Taylor, F.R.S., lecturer on medical jurisprudence and chemistry in Guy's Hospital; author of "Medical Jurisprudence," may be found the following: "In another instance a woman, aged twenty-nine years, suffered from vertigo and numbness of limbs and other symptoms when only twenty drops of the tincture of opium were administered in the form of enema, *i.e.*, about one grain of opium. The same dose had been administered for six nights previously without any serious effects following. *This fact renders it not improbable that the drug possesses an accumulative power.*"

On page 470 of the same work the author writes as follows: "In December, 1843, a gentleman swallowed a quantity of laudanum and was found laboring under the usual symptoms. The greater part of the poison was removed by the stomach pump, and he so far recovered from his insensibility as to be able to enter into conversation with his medical attendant, but a relapse took place and he died the following night. It is not improbable that in these cases death may be occasioned by the *accumulation of the poison* carried by the absorbents into the system, *i.e.*, the morphine may be more rapidly carried into the system than it is eliminated out of it."

The author continues on page 494 as follows: "The frequent repetition of a poisonous medicine administered, if the interval between the doses be not sufficiently long to allow the individual to recover from its effects, will operate as fatally as if the poison was given at once. It also tends to strengthen the view that the *salts of morphine have an accumulative property.*"

On page 484 the author still further discusses this point in the following language: "The quantity of this poison required to destroy life may present itself to a medical jurist as a question under another form, namely, whether a quantity which, if taken at once, would suffice to kill, will prove equally fatal when administered at certain intervals in divided doses. . . . It appears to me certain, when the intervals at which these divided doses are given are so short that the patient has scarcely recovered from the effects of one before another is administered, that the poison may destroy life, when the whole quantity has been taken, although each dose individually might have been harmless. If a sufficient time has elapsed between the doses for the patient to recover entirely from the effects, there may be some doubt whether death would follow, although *it cannot, I think, be denied that opium may possess an accumulative power.*"

The following is an interesting example of the cumulative action of opium. Dr. James P. White (Tran. Am. Gynec. Soc., 1878, III, 299) reports

the case of a woman upon whom an abdominal operation for tumor was performed, and who, owing to her statement that opium taken into the stomach always produced very disagreeable symptoms, was given a suppository of opium, grain iii, with extract of belladonna, grain one-fourth, and sulphate of quinine, grain iiss, every four hours to allay the postoperative irritability of the stomach, all food and medicines having been rejected. On the third day she suddenly became comatose and presented all the symptoms of severe opium poisoning, and only the most heroic measures saved her life. This case shows a sudden and overwhelming action of the drug. For two days the patient had used the suppositories which suddenly, in the afternoon of the third day, induced such a profound narcotic effect.

Instances similar to the above are not of very infrequent occurrence, and seem to require no further comment from me. They speak for themselves and decide the question of the cumulative action of opium without further controversy.

Now, as to the accuracy of the next statement contained in the opinion regarding the time which is required for the effects of a dose of one-tenth of a grain of morphine to disappear, here the learned Justice holds that "*no effects would remain in four hours*" after it was administered.

This statement is so utterly foolish that it is almost a waste of time to consider it. Any person who has ever, knowingly, taken a dose of opium or morphine has realized the exact contrary to the learned Court's statement to be true. If I might be permitted to do so, I would like to suggest to His Honor the reading of De Quincy's "Confessions of an English Opium Eater," in which the author describes the *period of excitation* following each dose of opium which he administered to himself as lasting from eight to nine hours.

Every experienced physician knows that it is on the morning following the evening of the administration of morphine to his patient that he will find evidences of the toxic effects of the drug. He recognizes these symptoms as soon as he enters the sickroom, the dull conjunctiva, the contracted pupil, the circulatory disturbances which are made manifest in nausea and perhaps vomiting when the patient attempts to raise his head from the pillow, the complaint of headache and dizziness and the apparent lethargy. All of these symptoms are frequently observed from the effects of a single dose of one-eighth of a grain of morphine and they may remain in evidence for a period of time anywhere from twelve to forty-eight hours. Every experienced physician also knows that there are many conditions which modify the time which is required for the symptoms of a given poison to appear, and also to disappear, after the poison has been administered, such, for example, as the condition of the stomach, whether full or empty, diseased or normal,

the condition in which the drug is administered, whether in the form of a capsule, liquid, pill or powder, the idiosyncratic tendencies of the patient, etc. All of these conditions must be taken into account when considering the subject of poisoning in any form. Ignorant, sweeping assertions, such as are contained in the opinion of the learned Court on this point, are not only worthless but harmful. They are nothing if not misleading.

On page 307, Vol. II, of Peterson and Haines' "Text-book on Legal Medicine and Toxicology," the following reference to this subject may be found: "Diseases as a rule do not appear suddenly in persons of health, but usually are preceded by a number of hours, days or even weeks of general or local indisposition. Poisons, on the other hand, generally produce their symptoms suddenly, striking down persons in health with great severity and with but a short period of antecedent distress. *It should be remembered, however, that there are important exceptions to this rule on both sides.* While nearly all poisons show their effects in the great majority of cases within an hour or two at most after their administration, and some, like the corrosives, hydrocyanic acid and strychnine, usually either almost immediately or within a few minutes, still many cases are recorded in which the full symptoms of the poison have been delayed a number of hours. Hartshorne relates a remarkable instance of poisoning from a dram of arsenic trioxide in which the symptoms did not appear for sixteen hours. Christison records a case in which upward of two ounces of tincture of opium were taken and no well-defined symptoms showed themselves till the eighteenth hour; and a case is reported in which a woman ate a considerable quantity of aconite root, no characteristic effects developing until ten hours afterward. The form in which the poison is administered, and the condition of the stomach as to whether containing food or not, are important factors, as we have already seen, in determining the rapidity of absorption, and consequently the time of the production of symptoms."

The following cases, reported by Taylor, on page 469, in his work on Poisons, will serve to illustrate this point:

"A man, aged forty years, swallowed ten drams of tincture of opium by mistake for tincture of rhubarb. When seen by Dr. Sewel *five hours* afterward he was in bed, awake and quite conscious. The pupils were contracted to the size of pin points and immovable. The temporal arteries pulsated with great violence. The speech was uttered with difficulty, the skin dry, pulse 100 and jerking. By active treatment the man recovered in fifteen hours. A man swallowed an ounce and a half of laudanum and in an hour one-half as much more, and lay down in bed; some excitement followed, with numbness of the extremities. He continued sensible and was so lively for seven hours after the first dose that a

medical man did not believe his statement. It was not until the eighteenth hour that stupor set in and in two hours more the symptoms of poisoning by opium were of an exaggerated kind. The ordinary duration of fatal poisoning by opium, according to the observations of Christison, is from seven to twelve hours."—Wormly, on Poisons, page 469.

This author cites the case of a stout, muscular woman who, under disguise, had served several months as a soldier in the War of the Rebellion. She took for the purpose of self-destruction, sixty grains of opium. "In about two hours afterward, being disappointed in the effects of the drug, she swallowed one-half ounce of laudanum and about half an hour later took as much more. When seen about three hours and a half after taking the first dose, by Dr. J. R. Thompson, to whom I am indebted for the particulars of the case, she was perfectly rational and told all she had done. Emetics of sulphate of zinc and ipecac were then administered, but they did not operate until about half an hour later, when they brought away a large mass of matter having a strong opiate odor. From several circumstances connected with this case there is no doubt that the patient took the quantities of opium and laudanum stated, which are equal to nearly one hundred grains of the crude drug."—Wormly, page 472.

"It has been frequently observed," says Taylor, on page 469, "in cases of poisoning by this drug, that the individual has recovered from the first symptoms and had then had a relapse and died. There is some medicolegal interest connected with this state, which has been called secondary asphyxia from opium."

In referring to a case of opium poisoning from the administration of twenty drops of laudanum given in an enema, Taylor, on page 479, says: "She continued in a state of delirium for twenty hours and the numbness of the limbs only ceased after forty-eight hours."

"Dr. Babington has communicated to me the case of a lady who had taken five grains of Dover powder, that is, about one-half grain of opium (about one-twentieth of a grain of morphine) and who suffered from stupor and dizziness for three days."

"These serious effects," says this author, "produced by small doses on adults, must, however, be considered as exceptions to the rule. They appear to be due to the idiosyncrasy or to a peculiar susceptibility of the poisonous effects of opium in certain constitutions. It must not be forgotten, however, that they lead to one important inference in legal medicine, namely, that an adult may be killed by a dose of opium which many, relying upon limited experience, would pronounce to be innocuous. We have commonly no means of detecting or recognizing the existence of this idiosyncrasy in individuals prior to the fatal event."

"A middle-aged gentleman, lying dangerously

ill from an attack of dysentery, took by mistake about seven drams of Battley's solution. Within five minutes salt and water with mustard were administered, and twenty-four grains of sulphate of zinc. Vomiting ensued; the emetic was repeated and with the same effect; the fluid evacuated at the second vomiting having the usual smell of opium. One-half dram of ipecacuanha was afterward given to complete the emptying of the stomach. Notwithstanding this repeated vomiting, symptoms of narcotism presented themselves speedily, with contraction of the pupils and very great drowsiness, rendering it necessary to remove the patient from bed, in his very debilitated state, and keep him constantly moving until about 9 P.M. (seventeen hours), when vomiting came on spontaneously. He was then put to bed and allowed to sleep. The original disease afterward resumed its course (complicated by an attack of gastritis), and at length terminated favorably. But the patient had no recollection of what had occurred for twenty-four hours after the administration of the emetics, and it appeared to his medical attendants that an excited state of mind remained for some days afterward."—Taylor, pp. 498, 499.

"Many persons manifest an unusual and in most cases inexplicable sensitiveness to the action of certain poisons, and this fact has not infrequently been the cause of serious disturbance and even of death from the remedial administration of these substances in the practice of medicine. Marked individual intolerance of antipyrin, of cocaine, or of even such comparatively harmless substances as quinine and, in fact, nearly every known drug and of many articles of food is almost daily observed by busy medical practitioners.

In all cases of poisoning the possibility of the existence of this unusual sensitiveness should be borne in mind. Idiosyncrasy is presumably the cause also of certain rare cases in which poisons produce very unusual symptoms, or even entirely opposite effects from those generally observed. Shearman reports a case in which a grain and a half of morphine was followed, not by coma, but by convulsions resembling those caused by strychnine, and Phillips records an instance in which atropine caused contraction of the pupils instead of dilatation."—Peterson and Haines, Vol. II, page 304.

Crothers, in his work on morphinism and its medicolegal relations, cites the case of "an active business man who, for insomnia of temporary duration, was given an eighth of a grain of morphine. The narcotism lasted one day, most of the time profound, and was followed by great muscular and mental depression. Later, when a small dose of opium was given, the effects were equally marked and long continued. In another case a man suffering from colic, was given a quarter of a grain of morphine. He slept two days, most of the time in a condition of stupor, from which it was difficult to arouse him. These

cases are not common," says the author, "but are likely to occur unexpectedly at any time."

Continuing, he says: "Some children show this extraordinary sensitiveness to opium and its preparations. . . . Profound narcotism follows its use, *lasting a long time* and ending in general derangement of the brain and nervous system."

The plaintiff in this action had a very decided sensitiveness to the action of opium, and this fact was well known by her family physician when he prescribed for her condition one-twenty-fourth of a grain of heroin to be given every four hours. The distressing bronchitis from which she was suffering necessitated the administration of some sedative to the bronchial mucous membrane. As it has been demonstrated conclusively by competent authority that heroin in one-twenty-fourth of a grain doses administered every four hours could not possibly have produced the symptoms from which this plaintiff suffered, there is but one conclusion to be arrived at, namely, that the ill effects which followed the administration of the substituted preparation must be attributed to the morphine which it contained. Moreover, there does not seem to be any need for further discussion of the question as to whether the effects of "one-tenth of a grain of morphine, or even a much larger dose, would remain in four hours after it was taken."

We pass on now to the next sentence contained in the opinion, which is the following: "Moreover, I believe that a court may take judicial notice of the scientific fact that one-tenth of a grain of morphine taken every four hours could not poison the plaintiff."

This is the most mischievous statement contained in the opinion. When the Supreme Court of this State, through Mr. Justice Gaynor, decided that a person cannot be poisoned by one-tenth grain doses of morphine, administered every four hours, it established a dangerous legal precedent which is contrary to all scientific medical knowledge on the subject.

Before citing authorities in support of this statement, I beg permission to call to the attention of my readers the following facts: This plaintiff received with each dose of medicine administered to her one-twelfth of a grain of heroin, together with one-sixteenth of a grain of morphine acetate, but all evidence which might have any bearing upon the administration of the additional one-twelfth of a grain of heroin was excluded at the trial. Consequently the testimony of the pharmacist to the effect that he dispensed for the plaintiff only one-twenty-fourth of a grain of heroin was admitted in evidence without contradiction. The learned Court having been guided by this evidence, has therefore decided that four doses of morphine, each dose consisting of one-tenth of a grain of that drug, were given her, and it is upon this that the learned Trial Justice bases his opinion that the plaintiff could not have been poisoned. Adding the four doses together, the plaintiff is said to have received a total of twenty-

five milligrams, which is equal to two-fifths of a grain, or one-tenth of a grain less than one-half of a grain of morphine. This amount, according to the evidence, was given in divided doses at intervals of four hours.

I have shown by competent authority that divided doses of this drug may have a cumulative action, in some instances and under some circumstances, producing practically the same poisonous effects as if the whole amount were administered at one dose. This plaintiff has a drug idiosyncrasy. She cannot tolerate morphine at all. It was for this reason that I prescribed small doses of heroin for the purpose of relieving her cough, instead of morphine. Moreover, she was much weakened as the result of her metrorrhagia.

Now, let us see what our medicolegal authorities say regarding the possibility of poisoning such a patient with morphine given in doses such as the defendant concedes were administered to this plaintiff:

"The individuality noted in the assimilation and ingestion of drugs is functional as well as anatomic. Numerous cases have been seen by all physicians. The severe toxic symptoms from a whiff of cocaine spray, *the acute distress from the tenth of a grain of morphine*, the gastric crises and profuse urticarial eruptions following a single dose of quinine—all are proof of it. The 'personal equation' is one of the most important factors in therapeutics, reminding us of the old rule, 'Treat the patient, not the disease.' The idiosyncrasy may be either temporary or permanent, and there are many conditions that influence it. The time and place of administration; the degree of pathologic lesion in the subject; the difference in the physiologic capability of individual organs of similar nature in the same body; the degree of human vitality influencing absorption and resistance; the peculiar epochs of life; the element of habituation; and the grade and strength of the drug influencing its virtue—all have an important bearing on the untoward action and tolerance of poisons."—"Anomalies and Curiosities of Medicine," Gould and Pyle, page 497.

"Billroth mentions the case of a lady in whom appeared a feeling of anxiety, nausea and vomiting after the ingestion of a small fraction of a grain of opium; she would rather endure her intense pain than suffer the untoward action of the drug. According to Lewin, Brochin reported a case in which the idiosyncrasy to morphine was so great that one-twenty-fifth of a grain of the drug administered hypodermically caused irregularity of respiration, suspension of the heartbeat, and profound narcosis."—Gould and Pyle, page 505.

According to Wood's Therapeutics, (1890, page 168), one-sixth of a grain of morphine produced a fatal result in an adult. Wood also quotes Dr. A. Culkins (*Quarterly Journal Psychology. Med.*, 1868, II, 739) as authority for

the statement that four grains of crude opium (four-tenths of a grain of morphine) has produced fatal results in more than one case. Wood further says (page 168, 1890): "In a babe a day old one minim of laudanum (E. Smith, *Lancet*, 1854) and in one nine months, a few drops of paregoric have proved fatal."

Hugo Mandl (*Wien. med. Wochenschr.*, 1899, XLIX, 1893) reports the case of a man forty-five years old, suffering from *tabes dorsalis*, advanced to the paralytic stage, who was given for the first time a hypodermic injection of morphine hydrochlorate, one-sixth of a grain: "In ten minutes he was suddenly seized with convulsions, lasting one minute, followed by extreme stupor, cyanosis, Cheyne-Stokes respiration, etc., and was in a critical condition for four hours, when consciousness returned."

The writer also cites the case of a man who complained of pain over the cardiac region, and who received a hypodermic injection of one-quarter of a grain of morphine. In three to four minutes the patient collapsed, the pupils dilated, and death followed from paralysis of the heart. "A quantity of morphine just above the limit of a medicinal dose in any case, is really on the border of a *poisonous quantity*, in that case. Given a barely poisonous quantity, that is, the smallest one 'tending to produce death'—it will depend on a great number of factors just how much more would be enough to carry out the *tendency* to its fatal conclusion. . . . Cases are well known of an unusual susceptibility to the action of morphine, so that the person having this idiosyncrasy, as it is termed, suffers poisoning effects from doses not above medicinal limits. . . . According to Christison, seven drops of laudanum always narcotized a certain gentleman. Half a grain of opium caused narcotism in a woman seen by Grisolle. The external application of about a grain of morphine to a blistered surface at the back of the neck—patient, an aged lady. Symptoms appeared after two hours, consisting of convulsive agitations, cold sweats, extreme prostration, and threatened suffocation, slow recovery under active treatment."—Peterson and Haines, Vol. II, 489, 490, 492, 493.

On page 995 of the National Dispensatory may be found the following words: "Not a few examples are recorded of death by syncope immediately after the administration of morphine hypodermically, and many also in which death seemed imminent. In one case, among others, a case of lumbago, this effect resulted from the hypodermic injection of one-sixth of a grain at a spot midway between the spine and the crest of the ilium. In about ten minutes collapse with syncope occurred, and the patient was with difficulty saved."—*Boston Medical and Surgical Journal*, Oct., 1879, page 619.

This case is the more interesting because it is cited from the National Dispensatory. This work is the authority quoted by Mr. Wilson, the pharmacist who dispensed the substituted mixture,

for his sworn statement that "from one-fifth to a quarter of a grain of morphine every hour would be a perfectly safe dose to give to every adult," and also that it made no difference as to the physical condition of the person to whom the morphine was given.

"An infant may be narcotized by the milk of a nurse who has taken opium. . . . Occasionally instances of idiosyncrasy occur in which the susceptibility to the narcotic influence of opium is greatly augmented. . . . The external application of opium, especially to an abraded surface, may prove highly dangerous an even fatal, especially in the case of infants. Christison relates an instance where a laudanum poultice applied over the abdomen of an infant to relieve pain produced fatal narcotism in some hours, and where at the autopsy a strong odor of opium was exhaled from the body, showing how completely the poison had been absorbed. . . . One grain of morphine has, on several occasions, produced death. Dr. Reese saw a case in which three-quarters of a grain administered hypodermically proved fatal to a man within twenty-four hours. Still *smaller doses thus administered have produced fatal results*."—Reese, "Medical Jurisprudence and Toxicology," page 549.

"In a case quoted by Dr. A. Stille (*Mat. Med.* I, 676), a lady affected with cancer of the uterus was dangerously narcotized by less than one-sixteenth of a grain of hydrochloride of morphine applied to the denuded skin of the epigastrium. Even the one-thirty-second of a grain of the alkaloid applied in this manner has produced very serious symptoms. . . . So, also, a case is reported in which one-third of a grain produced profound stupor and another (*Boston Medical and Surgical Journal*, October, 1879, 619) in which about one-eighth of a grain of the sulphate caused most singular and alarming symptoms. . . . Dr. Toogood relates an instance in which twelve drops of 'Battley's solution,' which is usually regarded as having about three times the strength of ordinary laudanum—taken by a feeble woman, aged fifty-five years, produced the usual symptoms of opium poisoning and death on the following day."—*Provincial Medical and Surgical Journal*, November, 1841, 129.—Wormly, *Micro-Chemistry of Poisons*," page 479.

The amount of morphine in the "sedative" mixture referred to in the above case could not have been at the most more than one-sixth of a grain. Taylor, on page 479, reports the case of "a young lady, aged twenty-nine years, who suffered from vertigo, numbness of the limbs, and other serious symptoms when only twenty drops of laudanum were given her in the form of an enema." (That is, about one grain of opium or one-sixth of a grain of morphine.) In connection with this case, Taylor refers to the case of "a lady who suffered from stupor and drowsiness for three days as the result of the administration to her of five grains of Dover's powder."

(That is, about one-half of a grain of opium or one-twelfth of a grain of morphine.)

"There are some facts connected with the fatal dose of this poison in adults which deserve consideration. The effects of the drug vary with age, idiosyncrasy, habit, state of health or disease and mode of combination. The aged and the young are much more strongly affected by opium than adults, and very small doses will suffice to kill individuals at the extremes of life. With respect to idiosyncrasy, its influence over the properties of this drug might be illustrated by numerous cases. Some persons cannot bear the smallest doses of opium without suffering from the most intense headache and other painful symptoms. . . . Two instances have just been mentioned where half a grain (one-twelfth of a grain of morphine) and one grain (one-sixth of a grain of morphine), respectively, occasioned alarming symptoms in an adult. The following is another instance of more recent occurrence in a case reported by Dr. Steinthal (Casper's *Wochenschrift*, May, 1854, page 249). A man who had been suffering from piles was ordered a starch clyster containing only one grain of pure opium (one-sixth of a grain of morphine). In about half an hour after its administration the patient was found in a partial state of narcotism. There was pain in the head, which felt hot, the eyes were red and suffused, glassy looking and half open; the face flushed; tongue dry; and there was a painful tenderness both in the head and face on the slightest motion. The man was talkative and incoherent, still having sufficient sense to put out his tongue when desired. There was complete loss of power in the upper and lower extremities and the man was in a half stupefied condition. A strong cup of coffee (half an ounce to a cup) roused him for a time, but in a quarter of an hour symptoms of narcotism again appeared and continued for two hours. The man fell asleep and awoke somewhat refreshed, but he had still lost all power of exerting himself; he slowly recovered from the effects of the dose. . . . From these facts it is obvious that a very small dose, i.e., from two to three grains (of opium), would in such cases suffice to kill an adult; and death might possibly follow from the effects of one grain." (One grain being equal to one-sixth of a grain of morphine.)—Taylor, page 481.

With regard to the danger of poisoning infants with opium, it is so well recognized by medical men as to cause only passing comment here. But in view of the fact that the pharmacist who dispensed the prescription for the plaintiff had no idea concerning her age, I am desirous of citing one or two cases on this branch of the subject.

Taylor, page 484, reports Beck's case, in which a child was poisoned with fifteen drops of paregoric (one-sixteenth of a grain of opium, or one-ninety-sixth of a grain of morphine). The author further reports, among others, the following cases of child poisoning by opium: (1) Child four months old nearly killed by the administra-

tion of one grain of Dover's powder (one-tenth of a grain of opium or one-sixtieth of a grain of morphine). (2) Four grains of Dover's powder killed a child four and a half years of age in seven hours. (3) Nine drops of laudanum killed an infant five days old in eighteen hours. (4) A woman boiled two poppy heads in a quarter of a pint of milk and gave only two small teaspoonfuls of this decoction to her child. In an hour the child fell into a deep, lethargic sleep; the respiration became stertorous and in ten hours it died. (5) An infant child was given a teaspoonful of Godfrey's cordial ($\frac{1}{32}$ of a grain of opium, $\frac{1}{192}$ of a grain of morphine) and it resulted fatally.

Taylor (page 493) reports the case of a lady whose death was caused by the administration of one-half grain of the acetate of morphine.

Dr. Christison is referred to by Taylor as reporting the fact that leeches applied to a child poisoned by an injection of poppyheads dropped off dead.

Taylor (pages 499) reports the following interesting case: "A young woman, laboring under scirrhus of the uterus, and suffering from vomiting and pain in the stomach, was ordered to apply to the epigastrium, from which the skin had been previously removed by a blister, the $\frac{1}{23}$ part of a grain of the muriate of morphine. The same dose was repeated by the endermic process the following morning. Some time afterward the woman fell into a state of complete narcotism. She suffered from pain in the head, stupor, dizziness and incoherency, a hot and dry skin, and a strong and frequent pulse. Among the symptoms was one that was somewhat remarkable, namely, that she saw only the half of surrounding objects. The cerebral congestion was followed by convulsions. Venesection was performed, but this only produced a stronger attack followed by another. . . . The symptoms gradually abated, but it was three weeks before vision and speech were perfectly restored. . . . Four-tenths of a grain of the acetate of morphine, applied to a blistered surface, have been known to cause dimness of vision and delirium." "In a case quoted by Dr. Beck, twelve drops of laudanum (half a grain of opium, one-twelfth of a grain of morphine), used as an injection to allay the pain consequent on cauterization of the rectum, produced all the symptoms of narcotic poisoning and death in seventeen hours."—Wormly (page 469).

What is to be said, in the face of such authoritative statements as have been cited to the contrary, of a decision emanating from a court of the highest original jurisdiction, which holds that "a court may take judicial notice of the fact that one-tenth of a grain of morphine, taken every four hours, could not poison the plaintiff"? This question is one which may well be answered by the allied professions of law and medicine. Let us proceed with our examination of the opinion, which continues in the following language: "It

is very evident that the names on the two bottles are, taken together, very misleading. The name 'Elixir Pinus Compositus with Heroin' is obviously wrong, for the contents of the bottle are, in fact, 'Elixir Pinus Compositus,' not merely 'with' heroin, but also 'without' morphine acetate."

In approaching an interpretation of the above paragraph one must confess to considerable embarrassment. It so far overshadows the Bunsbyism of the renowned Captain that the "application on it" would tax to its utmost the penetration of the esteemed and worthy expounder, "Edward Cuttle-Mariner." We find the learned opinion holding that the contents of a bottle are not only with "but without" something, that is, the bottle contains, and yet it does not contain. A bottle containing "Elixir Pinus Compositus with Heroin" is held, by the learned Court, to be improperly and wrongly labeled, because the label tells only the contents of the bottle, and a label is held to be misleading because it does not specify *what the bottle does not contain*. Why a bottle containing "Elixir Pinus Compositus with Heroin" should be labeled *without morphine* or without anything is a pharmaceutical mystery, the solution of which must be left to the learned trial justice. Why not label it without codeine, or without quinine, or without every other drug in the pharmacopœia.

The prescription as written for this plaintiff had nothing to do with morphine any more than it had to do with strychnine. Neither the word morphine, nor the drug itself would have played any part in the illness of this plaintiff, had it not been for the negligent and willful intrusion of the defendant drug company through its manager, Mr. Wilson. "The names on the two bottles taken together" are no more misleading to a competent observer than are the names which may be found on any other two bottles now standing on the shelf of the pharmacist. Ignorance is always misled. No sane person attempts to interpret the language of the chemist or pharmacist unless he understands its full meaning. Many drug stores contain two certain shelf bottles. One of these bottles is labeled "Tinct. Ipecac Co." One contains "liquid Dover's powder," a preparation of opium, and the other contains plain tincture of ipecac, which contains no opium at all. Is the bottle label which reads "Tinct. Ipecac" improperly worded because the label does not also specify that the bottle does not contain opium? Such a proposition, in the light of pharmaceutical training, *must* be absurd because it is the business of the druggist, under the law, to know that the letters "Co" on the label, when added to the words "Tinct. Ipecac," indicate that the preparation, besides containing ipecac, also contains a definite quantity of opium to each minim, and further that through the addition of these two letters the label indicates that the opium has become the important ingredient contained in the bottle. The similarity in

names must not mislead the pharmacist. The law will not permit it to do so. The courts have held that the druggist, in the vending and dispensing of his drugs, must properly identify them and, also, that he cannot neglect such proper identification without liability. An examination of Merrell's list of preparations will disclose the fact that there is nothing misleading about the labeling of them, provided always that the person reading the label is both competent and honest. It is not expected that the public can understand them. To be familiar with them is the business of the physician and the pharmacist. One might venture the opinion that it is expecting almost too much of the learned trial justice to require of him a strictly correct and scientific interpretation of such things. There are some branches of science, besides toxicology, which may possibly have escaped his memory. There are four separate and distinct Elixirs of White Pine listed in Merrell's catalogue, as follows:

Elixir Pinus Comp.
Elixir Pinus Comp. Plain
Elixir Pinus Comp. with Heroin
Elixir Pinus Comp. with Codeine.

The labels on the bottles containing these different preparations cannot mislead any but the careless or incompetent pharmacist, because the bottles containing heroin and codeine announce the fact in large red letters on their labels, and a reference to the manufacturer's list will also identify them beyond question. The following abstract from Merrell's catalogue will serve to illustrate this point: "Elixir Pinus Compositus Plain contains no morphine, codeine, or other derivative of opium. This elixir is supplied either *plain, with morphine, codeine, or heroin*. *Elixir Pinus Compositus with morphine will be supplied in the absence of specification.*" Nothing can be plainer than this. All the Bunsbyism contained in this learned legal opinion cannot alter the facts as set forth on the labels of the manufacturer and, also, as contained in his catalogue. And just here it seems pertinent to ask the question of the pharmacist, Why did he not add the heroin to the "*plain Elixir*," instead of adding it to the Elixir which already contained morphine? If a druggist is bent on committing the crime of substitution, why not do it so as to limit as much as possible the chance of poisoning the patient? If Mr. Wilson had added the *proper amount* of heroin to the "*plain Elixir*," although his act would have been that of substitution, the patient would have suffered little or no harm. The explanation of the fact that he did not do so is contained in the former statement that he never looked at the manufacturer's catalogue until after his act of substitution was discovered, and consequently he was entirely ignorant and negligent of what he was doing when he dispensed the prescription for this plaintiff.

Continuing, the learned justice makes use of the following language: "*For this reason the doctor's prescription was negligent. It should*

have unmistakably distinguished between the two bottles, since the names on their labels did not." When writing this latter part of the opinion, the fact that he had written the first part of it must have slipped the mind of the learned trial justice. If, in his opinion, the words "without morphine" should have been added to the prescription, what then becomes of his theory concerning the great necessity of following the shop label? The bottle label as printed by Merrell does not read "without morphine," and his Honor has already held that the shop label ought strictly to be followed by the physician in writing his prescription. The first part of the opinion distinctly holds that the prescription was not carefully written because the word "Cum" was used in it, instead of the word "with," on the ground that in containing the word "Cum" the prescription "did not even correctly follow the patent medicine bottle it was to be filled from." In the latter part of the opinion we find the learned justice holding just the opposite of this, namely, that the physician in writing his prescription, should have disregarded the shop label and should have added to his prescription the words "*without morphine*," and that, because the prescription did not disregard the shop label to that extent, it was negligently written. Thus the prescriber is "damned if he does, and damned if he does not." It is almost too absurd for criticism to say that a prescription shall designate what ingredients are to be left out of it, as well as to name those ingredients that the prescriber desires to have put in it. Under the suggestion contained in the opinion, on this point, the prescription which is being discussed should read something like this:

"Elixir Pinus Compositus Cum Heroin without morphine without codeine without chloral without paregoric without chloroform,"	Merrell's $\frac{3}{4}$ iv.
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and so on throughout the whole materia medica.

Every physician knows, and every druggist should know, that morphine and heroin are never prescribed together in the same mixture. When heroin is prescribed it is always to the exclusion of morphine. The two drugs are never mixed, unless perhaps through the careless blundering or the willful substitution of the pharmacist.

One of the objects of the physician in prescribing heroin is to get rid of the untoward effects which accompany the administration of morphine. It should not, therefore, be necessary for him, when prescribing heroin in a mixture, to be compelled, through judicial decision, to ask the dispensing pharmacist to be kind enough to leave out morphine, any more than he should be compelled to politely request him to dispense the prescription without arsenic, strychnine or Rochelle salt. It is the business of the druggist to dispense the prescription as it is written, or he must decline to dispense it at all. No pharma-

ceutical liberty should be tolerated in this matter, unless such liberty is authorized by the prescriber. Any deviation from the letter of this "hard and fast" rule and the physician's prescription, as an order to the druggist, becomes valueless.

The opinion is concluded in the following paragraph from which I have omitted certain phraseology devoted to a personal attack by the learned Justice on myself. My reason for omitting the language referred to is because it is irrelevant to the issue and also because I have already considered it at sufficient length in a previous article.

"My attention is called to the fact that the doctor has published in a medical journal and otherwise the false and invented statement that it was decided in this case that a pharmacist may change a doctor's prescription, or substitute some other medicine than that it calls for, without liability. . . . But lest any drug clerk may be misled by such false statement to the danger of others, it seems proper that I say that not only was no such thing said or decided, but it was not presented or even mooted. Where would counsel be found to present and argue such an absurd proposition?"

Notwithstanding the above statement, a reference to the following words of the learned Justice, as set forth in another part of the opinion, will, I think, convince the reader that the contrary is true, and that the learned Justice has really held that to tamper with the physician's prescription is not negligent.

"The pharmacist therefore, in order to fill the requirement of the words "Cum Heroin" in the doctor's prescription, added the said $\frac{1}{24}$ of a grain of heroin to the dose, and thereby literally filled the prescription which, as we have seen, called for "Elixir Pinus Comp" with the added two words "cum Heroin" (with heroin). There was plainly no negligence in this."

Nothing can be plainer and more positive than this. The prescription called for a specific preparation made by Merrell, and the opinion of the Court holds that the pharmacist may dispense a distinct and separate mixture to which he himself has added heroin. When it is considered that the evidence in the case is conclusive that the four ounces of the preparation, to which the heroin was added, already contained two grains of the acetate of morphine; and also that this amount of that poisonous drug was actually dispensed for the plaintiff, whereas no morphine whatever was prescribed for her, it does not seem that there can be any doubt whatever of the attitude taken by the learned trial Justice on the question of the right of the druggist to substitute. But if the reader is still doubtful regarding the position assumed by his Honor in reference to this matter, the following words, also quoted from the opinion, will serve to make the point clearer: "*The pharmacist properly added $\frac{1}{24}$ of a grain of heroin for each dose.*"

Thus the door to drug substitution, instead of being closed by the Court, is thrown wide open by it, because, if the Supreme Court of this State holds that the prescription may be tampered with to the extent which is here held by Mr. Justice Gaynor to be proper and without negligence, where will the dishonest and unscrupulous pharmacist draw the line in his tendency toward intrusion on the physician's prerogative? Finally, I believe we may conclude the examination of this opinion with the positive assertion that even if "no such thing was presented or even mooted" as the technical question of the right of the pharmacist to substitute drugs in the preparation of the physician's prescription, the learned trial Justice, in the adjudication of the case at bar, has decided, to a point of great certainty, that the pharmacist has that right.

The question of the learned Court, "*Where would counsel be found to present and argue such an absurd proposition?*" may truthfully be answered that nowhere at the bar could such counsel be found, but the bench has furnished an advocate. It was left to Mr. Justice Gaynor to take the initiative and in the entire field of "*such absurd presentation and argument*" he stands pre-eminent, steadfast and alone.

102 Fort Greene Place.

MEDICAL PROGRESS.

MEDICINE.

Gastric Ulcer.—First remarking that the symptoms depended on in the past for the diagnosis of gastric ulcer are insufficient, and that there is no single symptom or laboratory test that is reliable, H. D. NILES (*Journal A. M. A.*, Oct. 21) gives his conclusions deduced from his study of the subject and his personal experience with or observation of 75 cases. While in at least 85 per cent. of all cases early characteristic diagnostic signs are lacking, there are still aids, he thinks, that can guide us to an early and

ulcer, and is certainly one of its most characteristic symptoms. Fifth, whether or not the continuance of the symptoms is influenced by medicinal or dietetic measures is of importance. If the symptoms are of long duration or occur and recur without adequate cause, there is probably a real pathologic condition and most probably ulcer. Hyperacidity and chronicity together point strongly to ulcer. Sixth, it may help to remember that the ulcer that occurs in the developing period (between eighteen and twenty-eight years) is nearly always due to hyperacidity alone, and often cicatrizes with proper treatment or even without treatment; while that in the middle age is more likely to start from degenerative changes in the scar of an old ulcer. The first form is due to imperfect adjustment of the secretory functions, and the last to nature's inability to protect scar tissue from effects of the normal gastric juice. Seventh, if, after a careful study of the case, taking into account all the above considerations, there is still doubt, the advisability of the crucial test, viz., an exploratory incision, should be considered. When there is still doubt and the weight of evidence is in favor of ulcer, Niles thinks that this measure should be resorted to.

Action of the Toxic Agent of Lobar Pneumonia Therapeutics.—In a résumé on this subject W. V. BREM, Jr. (*Bull. of the Johns Hopkins Hosp.*, October, 1905) states that the action of the toxic agent of lobar pneumonia is as follows: (1) Phenomena of the mild action bear the features of stimulation of the central nervous system and cardiac muscles. (2) Phenomena of severe intoxication appear to result from intensified stimulation, or enfeeblement and exhaustion from overstimulation. (3) Death occurs from (1) respiratory insufficiency terminating in asphyxiation or in exhaustion of the respiratory center, or (2) circulatory insufficiency, which leads, presumably, to accumulation of the toxic agent, and which may induce edema of the lungs or end in exhaustion of the heart muscle. The therapeutics consist in: (1) Elimination of the toxic agent by internal hydrotherapy, (2) amelioration of harmful influences (a) fever—external hydrotherapy; pain—ice bag and analgesics; restlessness, insomnia, delirium—external hydrotherapy, analgesics, and

Respiratory indications. (1) Heroin every two hours for a respiratory-rate reducer. (2) O₂—inhalation is probably useful, but may be harmful. (c) Circulatory indications. (1) Sedatives probably contraindicated, except in cases, which may be of benefit during early stages of increased cardiac work. (2) Alcohol indicated in cases where there is low blood-pressure. (3) Digitalis may be of benefit when there is no evidence of circulatory insufficiency. (3) Circulatory stimulants are indicated, except members of the digitalis series. (4) In cases of low blood-pressure associated with evidence of three conditions, namely, respiratory insufficiency, small urinary output, oedema of the lungs.

Angina Pectoris.—Since angina pectoris is a disease of patients suffering with most diverse degrees of heart lesion, and even in patients without evidence of cardiac disease. JAMES MACKENZIE (*Brit. Med. Jour.*, Oct. 7, 1905) concludes that there are three common causative factors. Symptoms of this disease may arise in (1) aortic disease, (2) aortic valvular disease, (3) atheroma of the coronary arteries, (4) myocardial degeneration, (5) increased arterial pressure of the elderly, (6) coronary spasm of the young. The fact that angina pectoris appears only after the heart muscle

has been long exposed to excessive strain, points to the cause being situated in the muscle. It may be said with confidence that all the muscular functions of the heart save contractility can be shown to be normal in many patients who suffer from this disease. The pulsus alterans is a demonstrable sign of exhausted contractility, and its presence is always associated with symptoms that are included in the symptom-complex of angina pectoris. Each may be occasioned by the same exciting cause, *i.e.*, extra strain on the heart, and both may disappear with removal of that cause. The inference to be drawn from these facts is that the symptoms included in the term angina pectoris are so closely associated with an impairment of contractility of the muscle fibres of the heart that in all probability it will be found that this muscular insufficiency sustains a direct etiological relation to angina pectoris.

Albuminuria of Adolescents.—In discussing this phenomenon CLEMENT DUKES (*Brit. Med. Jour.*, Oct. 7, 1905) refers to that type of albuminuria which has been variously termed "early," "latent," "functional," "cyclic," "intermittent," and "postural." The chief significance of this disorder lies in the fact that it is often the cause of banishment from school, exclusion from the army, navy and civil service, and refusal of life assurance to those applicants so affected. An analysis of a series of records reveals that albuminuria exists in 16.27 per cent. of boys between the ages of thirteen and fourteen years. There are three types of constitution in which this form of albuminuria chiefly manifests itself. The first and largest class exhibit increased arterial tension in consequence of irritability of the vaso-motor nerves. The tension, however, is unstable, which symptom is pathognomonic. It is most frequently produced by excess of nitrogenous food, by imperfect action of the body scavengers, and by a hereditary tendency to gout. The next most extensive class comprises those who have cold, clammy, swollen, congested extremities, accompanied by a large, feeble, compressible pulse, arising from deficient vasomotor control. The heart participates in the general lack of tone, and dilates. Chilblains are frequent. The remaining class is made up of the spare, highly-strung, oversensitive neurotics. The pulse is thin, thready and unstable in tension. In general, albuminuria of adolescents appears to arise from a want of cardiovascular adjustment to changes of blood pressure, depending upon a certain state of the vasomotor system. In fact, there is perceived a congestive neurosis, and so long as the hyperemia persists transudation of serum-albumin through the dilated capillaries is liable to continue. When recognized and treated, there is little likelihood of this derangement proving the precursor of organic disease of the kidney. The general treatment resolves itself into such a regulation of life as will ensure the highest state of vitality during adolescence.

After-Effects of Diphtheria on the Heart.—F. W. WHITE (*Journal A. M. A.*, Oct. 21), from a study of seventy-eight cases of diphtheria with heart complications, after their discharge from the Boston City Hospital, and kept under observation for from five months to a year, and in none of which was there any evidence of heart disease antedating the diphtheria, deduces, in substance, the following conclusions: (1) The cardiac disturbance after diphtheria usually presents the picture of a mitral insufficiency with irregular heart action and few symptoms.

Occasionally there is only rapid pulse or cardiac irregularity alone. (2) Moderate disturbance of the heart is common after diphtheria, and in many cases persists for from two to six months after the original illness. (3) Frequently the cardiac lesion does not clear up in the first half year, but lasts much longer; some patients recover; others probably do not. The duration of the heart trouble is usually in proportion to the severity of the original illness. (4) The fact that only few heart symptoms are often present after diphtheria should not mislead us as to the importance of the injury to the heart. (5) Cardiac disturbance of long duration after diphtheria may be entirely recovered from, and hope should not be given up in individual cases. (6) The treatment of the condition consists in a sufficient period of rest in bed, and then in watching the effects of mild exercise on the heart for several months at least and grading it to meet individual requirements. White hopes to follow up his cases still farther, and, therefore, considers his paper as a preliminary report.

Acute Pericarditis Complicating Acute Lobar Pneumonia.—J. A. CHATARD (*Bull. of the Johns Hopkins Hosp.*, October, 1905) in a clinical review of acute pericarditis complicating acute lobar pneumonia states that during a period of sixteen years 665 patients suffering from acute lobar pneumonia were treated at the Johns Hopkins Hospital. Acute pericarditis was present in 31 patients or 4.66 per cent. In 13 or 41.9 per cent. pericarditis was recognized during life; in the remaining 18 patients it was only recognized at autopsy. The average age of the patients was 32.5 years. The complication occurred most frequently in young adults. There were 22 males and 9 females. Of the males 10 were white and 12 colored; among the females 5 were white and 4 were colored. The average duration was six days. The right lung was involved 13 times; the left lung 5 times, and both lungs 13 times. Pleurisy was by far the most common complication. The mortality was extremely high, 29 patients out of 31 dying, or about 93.5 per cent. A marked history of alcoholism was given by 10 patients. Two patients gave a history of previous attacks of pneumonia. Another had had both pneumonia and acute rheumatic fever previously, and one either acute rheumatic fever only. Two patients showed a general pneumococcus infection, the organism being cultivated from the blood during life. Delirium occurred in 19.3 per cent. The autopsy records showed the variety of pericarditis as follows in order of frequency: Acute fibrino-purulent pericarditis, 10 times; acute sero-fibrinous pericarditis, 9 times; acute fibrinous pericarditis, 8 times; acute purulent pericarditis, 2 times. In 3 instances only was a very large amount of fluid present. The respective amounts in these three cases were: 500 c.c.; 800 c.c.; and 1,000 c.c. The pneumococcus was obtained in culture in 23 instances. In looking over the clinical and pathological records, one is especially struck with the seriousness of pericarditis in acute lobar pneumonia. A striking fact is the more frequent involvement of the lung and pleura on the right side. This would seem to indicate that pericarditis is due to a metastatic process, through the blood or lymphatics rather than by direct extension from the lung or pleura. This is of interest in the light of the fact that great stress has been laid by many in previous reports on the synchronous involvement of the left lung and pleura. The author concludes by stating

that pericarditis developing during the course of an acute lobar pneumonia is a most serious and important complication, occurring more especially in young adults, frequently insidious, latent and often not recognized during life. It appears to arise as frequently by a metastatic process as by direct extension. Treatment is very unsatisfactory and often unavailing, except when the fluid is present, in which case it is more surgical than medical. In all patients with pneumonia a most careful watch should be kept on the heart, as this complication appears to be much more frequent than is generally supposed, and urgent treatment in the early stages may materially reduce a high mortality.

Insomnia and Its Treatment.—J. SANDERSON CHRISTISON (*Am. Med.*, Oct. 14, 1905) enters into a full discussion of the short periods of sleep among men of eminence; the phenomena of exhausted soldiers marching while sound asleep; the control of sleep by the will; age in relation to length and depth of sleep; quantity of food and the seasons of the year in relation to sleep; some long sleepers; sleeping sickness; suspended animation in man and animals; effects of forced privation of sleep; habits of sleep in animals—day and night sleepers.

Tuberculosis of the Kidney.—J. G. SHERRILL (*Journal A. M. A.*, Oct. 14) thinks that tuberculosis of the kidney deserves more attention than it has generally received; it is claimed that it exists in 2 per cent. of all tuberculous cases. The infection is mainly through the blood, though it may be through contiguity or contact with other infected organs, or may be an ascending one from the genito-urinary tract. Any age is liable, but the conditions seems to be the most common in early maturity, between the twentieth and thirtieth years. Figures differ as to the relative proportions of the sexes affected. In case there is a general tuberculosis, both kidneys are involved in two-thirds of the cases, but if the infection is only renal it is usually unilateral. In circulatory infection the bacilli are localized near the blood vessels, and there produce their characteristic cell proliferation, and the tuberculous process sooner or later progresses to other portions of the organ, so that localized regions or the whole kidney may be involved. The various pathological changes are described. In some rare cases a mixed infection may cause destruction of the tubercle bacilli and recovery ensue. In most cases, the onset of the disease is insidious. The symptoms, pain in the back, paramedian, subcostal and lumbar tenderness, vesical irritation, pyuria, hematuria and albuminuria are noted. The presence of tubercle bacilli in the urine, though important, is not an infallible symptom, as they may be present there without pathologic change in the urinary tract. Nor is their absence a proof that the kidney is sound. The general symptoms are those of tuberculosis anywhere; Sherrill is inclined to think that too much stress has been laid on loss of flesh as a symptom. The diagnosis is to be made by the history, general condition, pain less severe than that in stone, and coming on slowly as a rule, dysuria, polyuria, hematuria, pyuria in acid urine, and the presence of albumin. With these the finding of tubercle bacilli in the urine will be conclusive. The conditions most likely to be mistaken for this disease are: Calculus, pyelonephrosis, renal new growths, tuberculosis of the bladder and cystitis. The detailed differential diagnosis from these conditions is given at some length. When the bladder is not diseased and the question is between calculus

and tuberculosis, Sherrill believes that ureteral catheterization is justifiable, and, as a means of diagnosis, unequaled. It also tells which kidney is healthy or at least diseased. The prognosis is usually bad except when only one kidney is affected, the condition recognized early and treated surgically. Recovery without operation is possible, but is rare. The treatment, of course, is surgical, but where it is impracticable, the usual methods of treating tuberculosis should be employed.

Pneumonia in the Young.—E. F. WELLS (*Journal A. M. A.*, Oct. 14) points out that pneumonia is most frequent in early childhood, and next most frequent in full maturity from thirty to fifty years of age. He limits the term to pneumococcal infection, and the fact that the pneumococcus is present in the mouths and upper respiratory passages of probably 50 per cent. of healthy persons accounts for the frequency of the disease. He has never failed to find the pneumococcus in several hundred examinations of persons who have had pneumonia. But he has not found it in recently born infants, which accounts for the infrequency of the disease in the very earliest periods of life. Once the throat becomes infected, however, the child is liable to pneumonia. The symptoms, high temperature, rapid pulse and breathing, pain, cough, the well-known expiratory grunt, the loss of appetite and the physical signs are described. The chill which is usually conspicuous in adults is absent in young infants and is infrequent in young children. The child is usually dull and apathetic; surface pallor is the rule. The duration of the disease is shorter in infants than in adults, and unless some complication like empyema intervenes, usually ends by crisis, or less frequently by lysis, in a week or more. Serious complications are more frequent in children. Serious pleurisy is less common than in adults. In case empyema intervenes, it is generally limited by adhesions, and if left alone usually evacuates itself into a bronchus or externally, and after a prolonged convalescence, complete or partial recovery occurs or the child may be worn out and die from exhaustion. These cases are usually recognizable, but, if in doubt, he advises using the exploring needle without hesitation. Other complications mentioned are otitis, with rare meningeal involvement, but usually recovery without impairment of hearing is the rule. Abscess, pericarditis, peritonitis, arthritis and endocarditis are rare. The prognosis of infantile pneumonia is unsettled by statistics, but Wells thinks that in private practice at least it is better than in the adult. The treatment necessarily must be more or less individual. The healthy child must be kept out of the way of the infected one. Exhaustion and too profound sleep must be guarded against in the infected child and the fluids of the body, whether intravascular or extravascular, must be cleansed of the soluble toxins. Wells would give the child with pneumonia plenty of liquids to drink and in addition normal salt solution by rectum if necessary. Theoretically, this washes out the toxins. Practically, Wells employs and advises it. In his practice he gives moderately large doses of a reliable tincture of digitalis with the enemata if they are retained. Other vaso-motor tonics may also be given. For high fever and restlessness he prefers tepid sponging followed by alcohol, repeated as required. This failing, he uses guaicol in suitable dosage to the thin skin of the flexures, supplemented by the ice-cap at intervals. Oxygen inhalations are useful when the patient is not fretted

by Dr. J. H. Lloyd. The case reported by Dr. Lloyd is a case of cephalic tetanus, in which the facial paralysis was bilateral. As in all other recorded cases of this kind, except one, the original inoculation wound was on the bridge of the nose. He reviews the chief facts of note in cephalic tetanus, and recapitulates briefly the other cases, seven in all, of facial diplegia in head

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strated in the case of the implanted ovum in its implantation in the uterine tissues. He attributes this fact to certain cases in which, with the symptoms of moderate pregnancy and the presence of more or less extensive hemorrhage, at the time of examination, results of the products of conception, or of the cause of the bleeding. The effect of the corrosive is, as mentioned, he says, is readily conceived in cases in which the implantation of the ovum is transverse, and the uterus to the Fallopian tube. When generally successfully accomplished it may frequently happen that the corrosive process extends completely through the tube, and brings the internal os into contact with the surface of the blood pressure measure, the peritoneum, and causes serious hemorrhage. He gives an account of a case in which this sequence occurred, and refers to another reported by Paul Zweifel, in which hemorrhage occurred eight days after the admissions of the ovum, and the ovum was found to have eroded completely through the tube and was in the peritoneal cavity. It would be a fair inference to make, that when a woman has missed one menstrual period and is attacked with sharp hypogastric pain, vomiting, with marked feeble pulse, and without rise of temperature, that an erosion has occurred through a gravid tube, and the need of prompt surgery should be at once suggested.

Relation Between Arterial Hypertension and the Indicanuria of Nephritis. HARRIS A. HENDERON, *Am. Med.*, Oct. 7, 1901, attempts to demonstrate the role which the products of intestinal putrefaction may play as part of the intoxication of uremia. Four cases of nephritis in which there was indicanuria and arterial hypertension were selected in which the pressure was materially reduced by the use of naphthalin as an intestinal antiseptic. That the naphthalin acted as an intestinal antiseptic was shown by a decrease in the amount of indicanuria and that the intestinal toxins actually formed part of the uremic condition was shown by the decrease in arterial pressure as the intestinal putrefaction decreased. Houghton argues that it is better to treat uremia by decreasing the supply of retained toxins which cause it than it is to administer vasodilators in attempting to neutralize their effects. One source is the intestine, and this is more or less under control. The anemia of nephritis can possibly be combatted best by allowing proteid food, when it is disintegrated in the intestine without the formation of indol.

Cephalic Tetanus.—J. H. LLOYD (*Journal A. M. A.*, Oct. 7) reports a case of this rather rare variety of tetanus, in which, contrary to the usual rule, the facial paralysis was bilateral. As in all other recorded cases of this kind, except one, the original inoculation wound was on the bridge of the nose. He reviews the chief facts of note in cephalic tetanus, and recapitulates briefly the other cases, seven in all, of facial diplegia in head

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in situ, the shape of the mesentery was demonstrated to be that of a flat structure, whose root is about 6 inches (15.25 centimeters) long and whose free border averages from 21 to 23 feet (6.40 to 7.01 meters) in length, while the distance from the base to its free edge is usually not more than 7 inches (18 centimeters). Half way between the root and the intestinal border the length is 23 inches (58 centimeters), and at its attachment to the bowel, 13 feet 8 inches (4.16 meters). The mesentery may well be described as consisting of two portions: (1) A proximal or flat portion, comprising that part (about two-thirds or three-fourths) which lies between the root and the somewhat indefinite line where the ruffled border begins. (2) A distal portion, or ruffled border which lies between the proximal portion and the intestine. To accommodate itself to the restricted space of the abdomen, the mesentery assumes curves and folds, lying in sheets, which become more numerous the farther the line is taken from the root. These sheets in the upper part of the abdomen leave their line of attachment more or less at right angle with the root, and are apt to be much flatter than those below, which pursue a course more or less parallel with

the root and show a greater tendency to lie in folds. That part of the mesentery which descends into the pelvis from the lower end of the mesenteric root is termed "the pelvic fold of the mesentery." Since it can usually be distinctly palpated, it is a valuable landmark in reaching the fossa to the left of the mesentery and may also assist in finding through a right iliac wound the lower part of the ileum as it is about to enter the cecum by curving the forefinger, after passing into the pelvis, upward around it. The intestine freed from its mesentery is approximately straight, but when the mesentery is attached, the intestine is obliged to follow a curved and tortuous course, and its free border is several feet longer than its mesenteric border. The result of this influence is to throw the intestine into a series of alternating loops of varying shapes, sizes and planes. The kinks so produced are usually confined to the lateral aspect of the gut. A distended and paralyzed intestine, filled with gas or semiliquid contents, does not at once empty itself through an enterostomy wound. The cause of this is obstruction from sharp curves and kinks, also from outside pressure on the tube, and further because the fluid portions in the dependent loops act as traps. Unless the intestine be gathered on a tube, it is impossible to pass any instrument into the gut without the probability of soon engaging the wall, usually in its free border. Another study was made for the purpose of determining through an abdominal wound which was the proximal end of an intestinal loop, and which the distal. This can be done by following down the mesentery on one side of the gut as far as the mesenteric root. In case twists of the mesentery are seen or felt, the loop should be rotated in such a manner as to untwist these and cause the intestine to run in the same direction as the base of the mesentery, when the mesentery, now parallel with its attachment, can be followed down to its base by the finger, and if neighboring coils are strongly retracted, by the eye.

Infection of the Knee-Joint.—From data obtained in the analysis of 310 cases, CARLETON P. FLINT (*Annals of Surg.*, October, 1905) recognizes infection of the knee-joint as occurring in five groups of cases: (1) Clean knees operated. (2) Penetrating wounds. (3) Primary. (4) Metastatic. (5) Traumatic. Non-penetrating injuries, traumatic or operative, and knees independent of any injury in the course of some other infectious process or not, may present signs and symptoms not to be distinguished in the absence of bacteriological examination from the cardinal signs and symptoms of infection. Undoubtedly certain of these cases are infected, but it is not possible to diagnose these from such as may be due to trauma and those possibly due to toxins secondary to infection elsewhere. One point, however, is to be noted. Non-penetrating injuries to the joint rarely show signs and symptoms for any length of time. That the knee-joint does exercise a certain amount of germicidal power can be demonstrated bacteriologically. The frequency with which the knee-joint becomes sufficiently infected to demand operation is shown by the following statistics: operations upon clean knees, 4.6 per cent.; operation for recent (five days) traumatic non-penetrating injury, 11 per cent.; operation for pathological conditions other than traumatic injuries more than five days old, 2.9 per cent.; operations for simple fracture of the patella, 4.6 per cent.; operation for fracture of patella done after the fifth day, 1.2 per cent.; operation for fracture of patella done before the fifth day, 10.5 per cent.; penetrating injury of the knee-joint, 60 per cent.; compound fractures of patella, 78 per cent.; knees subjected

to non-penetrating injury and not operated, 10 per cent. of operated septic cases; infected knees where no history of trauma exists or other evident septic focus in the body, 13 per cent. of operated septic cases; knees infected secondary to a focus elsewhere, 11 per cent. of operated septic cases. The operation of incision and drainage of an infected knee-joint has a mortality of 11 per cent. Of cases so treated 6.6 per cent. come to amputation before recovery, and 3.3 per cent. to resection. Most knee-joints, which have been infected, opened, drained and recovered, show varying degrees of functional disability, from slight limitation of motion to complete ankylosis with or without subluxation. When operative interference is decided upon, it should be remembered that the knee-joint is a large abscess cavity filled with pockets and hard to drain. Therefore as radical an operation as possible should be done from the start. When opened the cavity should be irrigated with some antiseptic solution, and the patient placed in such a position as will secure the freest drainage. Usually this position is face down. In the less acute cases the leg should have continual traction to prevent subluxation.

PATHOLOGY AND BACTERIOLOGY.

Spirochæta in Syphilis.—More and more reports on the successful findings of *spirochæta* in syphilis are constantly coming in so that there can now be little doubt that the true cause has at last been discovered. Thus, G. SOBERNHEIN and E. TOMASCZEWSKI (*Münch. med. Woch.*, Sept. 26, 1905) have examined all in all 58 cases of syphilis. The organism was found in 50 of these, but the eight negative ones were all tertiary cases. In 28 non-syphilitic cases the *spirochæta* was never found, though many hours were spent in looking through the slides. In the hanging drop, the *Spirochæta pallida* is an extremely delicate, absolutely straight structure which presents from 6 to 30 turns. At the ends, the turns are less high and may even be wanting altogether. The *spirochæta* found in non-syphilitic lesions are always thicker and larger and seem also to possess more marked motility. The importance of a prolonged search is particularly emphasized, since the distribution is very uneven, and hours may elapse before one or more are found, even if the material is very infectious. Another important fact is the invariable presence of the *spirochæta* in secondary lesions, even if these appear very late after the infection, while in tertiary lesions, no matter how soon these develop after the initial induration, they are always absent. This is in perfect harmony with the observation that tertiary lesions are not communicable. K. HERXHEIMER (*Münch. med. Woch.*, same number) has obtained better results by staining the slides with an aqueous solution of gentian violet, saturated by heat. With this method, additional details in the morphology of the *spirochæta* may be observed, which the Giemsa stain does not bring out. Thus, small, flat structures may be found in varying numbers within the body of the parasite, while at the ends there are often larger, more round or oval bodies which frequently do not stain at all. A number of other structures are described, which either adhere or lie external to the organism. A difference between *spirochæta* of primary and secondary lesions could not be detected. Similar structures have been seen in other *spirochæta*, but their nature is not clear; they may be nuclei or centrosomes.

Thymus Gland in Children.—Observations on over fifty cases taken consecutively in the ordinary course

of post-mortem work upon children induces J. M. FORTESCUE-BRICKDALE to conclude (*Lancet*, Oct. 7, 1905) that the usual weight of a microscopically normal thymus in a child under one year is less than 100 grains. The gland in children suffering from "primary atrophy" or marasmus is commonly, but not always, found fibrotic, the weight and size being also usually diminished. In children suffering from "secondary atrophy" the changes, though similar, are not so constant. Possibly some other factor than mere malnutrition or starvation may produce these fibrotic changes, since in a patient where pure starvation was produced, by congenital stenosis in the alimentary tract they were not observed. In cases of acute illness in children fibrosis of the thymus may accompany general wasting. It is difficult in these cases, however, to exclude previous disturbances of nutrition, especially among hospital patients. Enlargement of the thymus and other lymphatic structures in the body may occur as the result of acute toxic absorption, as in diphtheria, or a more chronic condition, as in lymphatism. In these enlarged glands eosinophile cells are numerous, but no special types are peculiar to either class. In some conditions, especially tuberculosis, cells with basophile or neutrophile granules seem to replace the eosinophiles, whereas in congenital heart disease eosinophiles are not found in the thymus at all. The large majority of glands examined showed fatty change. This degeneration was, in many cases, limited to the peripheral zone of the lobules. The cells of Hassall's corpuscles also occasionally showed fatty change, and infrequently true hyaline degeneration.

The Metabolism in Osteomalacia.—A case of osteomalacia in a young woman, sixteen years old, who had been crippled for several years as the result of this disease, afforded J. E. GOLDTHWAIT, C. F. PAINTER, R. B. OSGOOD and F. H. McCRUDDEN (*Am. Jour. Physiol.*, Nov. 1, 1905) the opportunity to study the metabolism in this disease. Their work seems to indicate that in osteomalacia there is at first a decalcification of the bony tissue; that the calcium is in part replaced by magnesium, but probably chiefly by an organic substance rich in sulphur, poor in phosphorus, similar to but not exactly like the normal organic matrix. If castration is performed during this period, the decalcification process is checked, and what has been lost is replaced. From Neumann's work it is seen that if the condition has lasted until it is very severe, the decalcification process finally comes to an end, but that after this castration does not restore the normal calcium metabolism.

Combined Aortic and Mitral Disease in Rheumatic Children.—In combined aortic and mitral incompetence, F. J. POYNTON (*Brit. Med. Jour.*, Oct. 7, 1905) claims that in most cases the mitral lesion is not a relative insufficiency secondary to aortic involvement, but that the combined lesion is the result of damage to both valves by rheumatism. Usually the mitral valve suffers first and the aortic later, either in the same attack or in a subsequent one. Such being the case, the mitral incompetency cannot be entirely dependent upon the aortic lesion, though no doubt the former is aggravated by it. The experimental study of heart disease shows that the infection of the aortic valve is often by direct continuity from the mitral, and in these cases the infection is usually a severe one. The cause of a fatal termination in severe cases of valvular disease is an attack of rheumatism. These patients rarely die solely from the

mechanical difficulties of an injured heart, as now and again occurs in adult life. The lesions under consideration can be grouped clinically into three classes: In Class I, there is no sure evidence of aortic disease, and it is only of autopsy that some beading or thickening of the aortic segments is discovered. In this group the aortic lesion is of merely academic interest, but the finding of these slight lesions throws light upon a practical point, the disappearance of an aortic regurgitant bruit. In Class II, the physical signs show that mitral and aortic disease exist, but the mitral disease preponderates and the aortic lesion hardly influences either the symptoms or the course of the disease. In Class III, both lesions are apparent, but the dominating one is the aortic regurgitation. It is these cases which tempt the explanation of relative insufficiency as the cause of the mitral lesion, yet post-mortem evidence shows that the mitral valve is almost invariably damaged by endocarditis. Primary aortic endocarditis in childhood is rare. This fact coincides with experimental work, where only with difficulty is it possible to produce a primary endocarditis of the aortic valve, though it is easy to produce mitral endocarditis or the combined lesion.

Germ Centers of Lymphatic Glands and Secondary Carcinomatous Deposits.—A close resemblance often exists between the germ centers of lymphatic glands and secondary carcinomatous deposits. J. BURTON CLELAND briefly indicates (*Lancet*, September 16, 1905) the several appearances that the germ centers may present, and in what way they differ from carcinomatous deposits. The cells which compose the germ centers are larger than the surrounding lymphocytes, having more protoplasm and a larger and vesicular nucleus. The whole area stains lighter than the surrounding part. Mitotic figures are nearly always numerous, and at the edge of the area the cells rapidly, but by distinct gradations, become converted into lymphocytes. The areas are usually small and indistinctly circumscribed, and in such conditions are not likely to be mistaken for a cancerous growth. But when associated with chronic irritation they assume a most striking appearance, presenting an increase of size and of mitotic activity, which suggests a form of compensatory hypertrophy. These hypertrophied germ centers form very sharply defined spherical or oval areas, taking a much lighter color. The cells composing them are of nearly uniform size and a little smaller and much more regular than those of cancer; they are closely packed together with very little stroma, though an occasional capillary may be noticed; the nucleus resembles closely that of an epithelial cell; and mitoses are often more numerous or as numerous as in cancerous growth. All these characters show how hard it may be to distinguish the one from the other. The most important difference is found in the boundary zone of each. The somewhat larger and more irregular cells of carcinoma are separated sharply and distinctly and often by a thin zone of fibrous stroma from the surrounding lymphocytes, and each cell at the periphery can be relegated at once into one or other class of these two. This is not the case in the outer zone of germ centers. Here both germ center cells and lymphocytes tend to be arranged in concentric rings formed of a delicate fibrous tissue, and all gradations are seen between undoubted germ center cells and undoubted lymphocytes. Under low power the appearance of peripheral limitation is reversed.

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No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, Including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

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LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, DECEMBER 2, 1905.

THE MODERN CRUSADE.

ONE of the most promising signs of the awakening of the conscience of the twentieth century is the universal uprising against the insidious foes of human life. No longer tolerated as irresistible antagonists, the dread diseases that annihilate a large part of the human race and permanently maim a still larger part, are now being opposed with all the weapons which modern scientific and social progress have been able to muster. The scientist and physician have benevolently contributed their full share of service in this warfare. But society at large has shamefully shirked its just tribute of responsibility in a struggle which for the numbers of its victims and the barbarity of its practices, makes the cruel wars of ancient and modern times appear in comparison like schoolboys' mock combat.

It is a credit to New York that within her boundaries has been organized among professional men one of the first societies whose object is to educate the public in the grim knowledge of the pernicious consequences of the social evil, a subject which has heretofore been left to the learned discourse of physicians and the flippant remarks or humorous gibes of the laity. The Society of Sanitary and Moral Prophylaxis has embarked upon a glorious

career, and it is to be hoped that the leaders in all walks of life will assist in this important social campaign.

A propaganda of international scope, with more comprehensive aims than those of the New York Society, has recently been organized in Paris, under the auspices of a society having this pretentious title: "The International League of Mothers for the Defense of the Family Hearth against the great Plagues of the Twentieth Century." Under the presidency of Prof. Suarez Menendez, and the patronage of the intellectual leaders of France, including D'Arsonval, Berthelot, Bouchard, Fournier, Lancereaux, Lan-nelogue, Leroy Beaulieu, Ribot, Richet, etc., this society has started an educational campaign directed not only against syphilis and gonorrhea, but also against tuberculosis, alcoholism and the large infantile mortality. These are the five main scourges of modern times, and the number of their victims vastly exceed those of the plagues which ravaged Europe during the Middle Ages. The question of the diminishing birth-rate is insignificant when compared with that of the enormous mortality, suffering, poverty, social and economic disability and general deteriorating effect upon the coming race, resulting from these relentless foes of modern society.

The recognition of the grave aspects of the social evil is reflected in the open public discussion of this topic and the growing periodical literature devoted to its ventilation. As examples of the latter one may point to the *Zeitschrift für Bekämpfung der Geschlechtskrankheiten* and to *La Croisade Moderne*. The latter has just made its initial appearance, and represents a unique phase of the educational movement in the interests of preventive medicine. It is the organ of the above-mentioned International League, and is addressed mainly to the matrons of society, for it is through their beneficent influence in the home that it is hoped to eradicate the cankers of modern life. Unlike the numerous popular health magazines, it sets forth plainly the fact about the five great modern plagues, their relation to the home and the means by which the home may become the starting point for all efforts directed against these evils.

The time has come when for the sake of the integrity of the race, the veil of professional mystery must be lifted from these subjects. The public should know all. The modern drama of the Shaw variety justifies its exhibition of moral

deformities as a legitimate educational function of the stage. How much more important it is that the full light of day should be thrown upon those forms of physical disease which find their best evil in popular ignorance and indifference.

It is still a mooted question whether the public school is the proper agency for the teaching of sexual hygiene to adolescents. But there is no division of opinion as to the propriety and absolute necessity of such teaching in the home. The youth of both sexes should receive, along with the priceless heritage of manhood and womanhood, a knowledge of these subjects which have been considered too hideous for polite literature. The voice of modern gynecology eloquently proclaims that the future mother should be warned of the fell consequences of venereal contagion! The clean bill of health that the father of the future will demand of the suitor of his daughter's hand will equal in importance, if not surpass, that of social and financial credentials. It is anomalous that at this advanced period of civilization the sacred privilege of perpetuating the species should be sacrificed to misguided chance and ignorance. Yet, the whole story of patient suffering of the innocent victims of conjugal infection has not been told. Nor have sociologists begun to gauge the extent to which this blight has stunted the growth and retarded the evolution of the race.

The future ideal state will wage a relentless war against this and kindred evils. The campaign against tuberculosis is now in the ascendant, but at no distant date an equally vigorous campaign against alcoholism and the many causes of the high mortality among infants, will engage the serious attention of public men. The only efficient weapon is popular education, and the wide dissemination of the elementary facts about the five great modern plagues, whether by means of the lecture platform or by means of such non-technical periodicals as the *Croisade Moderne*, is to be welcomed as one of the most promising activities of the present age.

"WHO WOULD NOT BE A BOY?"

THE search for the elixir of youth has been as eagerly pursued as that for the philosopher's stone and perpetual motion, and has been, up to this time, considered equally chimerical. Ponce de Leon, to be sure, had vivid dreams of success, and Brown-Séquard considered it to be within his grasp. But they, like youth itself, had their

fling, and still people grew old, until it became once more generally accepted that the three score years and ten allotted by the psalmist was correct.

Now, however, two claimants for the solution of the problem have appeared, and though differing from each other, not only as to theory, but in practice, have united on the single ground that, not only is such a consummation to be devoutly wished, but to be achieved. The first of these, the Rev. T. B. Gregory, has contributed an article to the press on this same foolish habit of growing old. It is quite a lengthy communication, and appears to embody a good deal of the philosophy of Father Williams, and to be built upon the virtues of commissions and omissions that were incidental to the life of that classical character "in the days of his youth." Added to this is the necessity for a general qualification for initiation into a "don't worry club" of the most approved pattern. For Gregory prescribes no chemical formula, and advocates no philter especially brewed, with which to fight all the decrepitudes of years. On the contrary, his advice is so simple that anyone can follow it and remain young, if only he has the necessary temperament to put faith in his counsel. This business, he says, of getting old, is largely a matter of will power, and in a cheerful strain he continues:

"We grow old because we permit ourselves to fall into the habit of thinking that we are old.

"We give up and let go; we lose our interest in things; we stop reading, stop thinking, stop taking a hand in the game of life; and when somebody refers to us as being old we enter no protest.

"The children are married, the farm or store is paid for; 'the old man' is fifty-five or sixty, the 'old woman' is fifty or fifty-five, and there isn't much more to do except to die. It is no uncommon sight to see men and women, hardly past their prime, so far as years go, looking and talking and thinking as though they were in the last stages of senility.

"They have allowed the fires of life to go out in their hearts. They have permitted themselves to become the victims of that wretched disease 'don't care.' In a word, they have ceased to assert themselves; have forgotten to use their will power; have abdicated the throne of their spiritual manhood and womanhood, and allowed themselves to pass under the sway of the lower forces."

There is a good deal more of this, and one begins to hope that perhaps Rider Haggard was correct in his portrayal of "She," and that it

will be possible for us "to live life over," if only we are good, when the Rev. Gregory gives a clerical slump, and abruptly dashes our new-found, freshly fledged hopes to the hard ground of practical fact, by the disappointing conclusion that "we cannot stop the flight of time: we cannot head off the one event that happeneth to all": but "we can keep on 'growing new wood,' and in that way keep on blossoming until the end."

All this, as we have said, is disappointing. We had higher hopes, more exalted aspirations than the mere sawing of new wood, and we have no direct or particular ambition to blossom to the end. So that it is with feelings of relief that we turn to Professor E. J. Kibblewhite, of London, who has a specific of his own for renewing youth, a treatment and regimen, and who is said to bear the external evidence of the efficacy of his own formula. Now E. J.'s particular elixir seems to be Glacial Acetic Acid, and this is the story concerning it. He says:

"It has long been noticed that the animals remarkable for their longevity have the faculty of renewing, at intervals, the skin, or shell, or other portions of their frame, in which the waste of the body becomes accumulated. After a certain age apparently the human body fails in the function of removing the dead waste of organic matter taken into the body. These substances accumulate in such quantities that they cannot be disposed of, and all ordinary efforts to remove them fail, just as the careless engineer fails, who does nothing but pour oil into his engine clogged up with dirt. If this dead waste be dissolved out of the body, the blood will do its work again, renovating the living parts again, as in youth. Otherwise it goes on, gradually clogging up the drain pipes. Hence, as men grow old, their skins harden and become like parchment, filled with indurated cement-like deposits, which can be felt in the flesh of old men."

All this, and what follows, is not new, and most of it is not true, but his personal experiences and the technic of the treatment is rather minutely given, and will doubtless prove of interest to anyone desiring to try the method.

"Sixteen years ago, after a good deal of previous experiment, I took up the use of glacial acetic acid, solid at forty degrees, as a means of dissolving the dead waste of the skin, using three parts of the acid to one of water. I sham-

pooed the body vigorously with it, and then got into bed damp. I found in my own case, and that of others, that this treatment cured gout and banished all the aches and pains of fatigue."

Both methods of preserving youth are interesting, if nothing more, and those experimentally inclined may find their own specific midway between—if they have *faith*. For who can say but that the secret for which Faust sold his soul to Mephistopheles may not be obtained at the corner drug store for a matter of a few cents by those going after it, with a mind echoing to the music of rejuvenated hopes?

RHEUMATISM IN CHILDREN.

WHILE acute rheumatic arthritis is not frequent in children, it is an extremely interesting and important affection, as in those below the age of puberty, even more than later in life, rheumatic fever is likely to leave its serious mark on the heart, for the individual is often unable to stand the strain of subsequent development and growth successfully. Furthermore, certain nervous affections, notably chorea, are associated with rheumatism in children, and there is a distinct tendency to the recurrence of this and other sequelæ, or even to repetitions of the acute rheumatic arthritis.

For these and other reasons the teachings of pediatricists, held in a recent symposium on rheumatism in children before the New York Academy of Medicine, are of more than passing interest.

A number of significant points were emphasized by those who took part in the symposium, most of whom were men of large experience in children's ailments. There was general agreement that rheumatic fever is extremely uncommon in children under one year of age, and very rare under two years of age. As a rule, in infants as yet in arms, the diagnosis of rheumatism can be excluded at once without more ado from the very fact that somehow these children are not subject to the exposure which leads up to rheumatism. Just what is the reason for this immunity is not known. Two things seem to be very clear: one that the children have a very liberal amount of fluid in their diet, since they live almost exclusively on milk, and the other, that they are not exposed to the sudden changes of temperature which somehow predisposes to the occurrence of infection by rheumatism, for there was no doubt expressed but that acute

rheumatic arthritis is really an infectious disease.

In very young children, the most frequent source of error as regards rheumatism is scurvy. The differential diagnosis is not difficult, yet it is often missed by those not familiar with the fact, that the attempt to make food absolutely sterile for children by boiling has resulted in this curious disturbance of nutrition which was thought to be banished forever from large centers of population by our knowledge of the necessity for a varied diet. Many patients with the disease are seen every year in the large cities of this country, and where there is any doubt, the substitution of a raw milk diet with a certain amount of fruit acids is almost sure to bring an improvement that makes the cause of the pathological condition clear.

Pseudo-rheumatism occupies almost as large a place in children as it does in adults. The most serious conditions that are mistakenly called rheumatism are those due to tuberculosis of the larger joints. Suspicion must be especially aroused if abdominal pains occur, for which no good reason can be found, in any intestinal ailment. In these cases, Pott's disease is nearly always insidiously beginning. To diagnose rheumatism of the abdominal muscles in a child, or of the hip-joint, is almost criminal. The hip is practically never singled out by genuine acute rheumatic arthritis for invasion. Only very rarely is the knee so affected. When pains are complained of in the knee, there is either a tuberculous affection of the hip, or the knee itself is beginning to suffer from the ravages of the tubercle bacilli. To give such children the ordinary coal-tar products usually recommended in rheumatism is sure to render their condition worse than before, and may, indeed, prove serious. Rest, with plenty of air and food, are especially indicated, and must be begun as soon as possible. The other forms of pseudo-rheumatism are less serious and consist of sprains and injuries with the overtiredness that sometimes comes in very active children, leaving a painful condition for several days. To make a diagnosis of rheumatism in such affections has the unfortunate result that the child is supposed to have already had one attack of rheumatism, and subsequent complaints of discomfort of other kinds are almost sure to be treated by so-called rheumatic remedies, without more ado.

There seems no doubt that in children a dis-

tinct tendency to the recurrence of rheumatism may exist. As a rule, the repetitions of the affection are of the subacute form, but prove to be seriously weakening for the patient. Climate is of some importance in the treatment of this set of manifestations of the disease, and yet has not as much influence as might be expected. A perfectly equable climate will not guarantee a child against future attacks. The physical condition is of the greatest importance, and it is the increase of resistive vitality which forms the best assurance against future attacks. The seashore, contrary to what might be expected from the dampness of the air, is a favorable place for such children. Salt dampness, according to the old tradition, is not depressing. Most of them, however, do best in the mountains, but care must be taken in the selection rather of the locality in which they live than in the region to which they shall go. For instance, living in a damp valley in the mountains will almost surely prove deleterious, while life on a neighboring hill a few miles away, in the sunlight, and brisk air, will almost surely be beneficial. Nearness to inland lakes and streams is not, as a rule, a favorable site for the treatment of children suffering from rheumatism when a change of climate has been determined upon.

While there is general agreement that the salicylates are the best remedies for the treatment of rheumatic symptoms, there is a distinct growth of feeling that these drugs must not be considered as a true specific for the disease. In some cases the salicylates fail to relieve any of the symptoms. On the other hand, the use of the salicylates over a prolonged period is likely to add to the anemia, which is such a characteristic sequel of the genuine rheumatic attack. Hence the necessity for the reduction of the dose as soon as the acute symptoms are under control. The child's restlessness must be relieved, for movement is almost sure by disturbance of the heart to leave that delicate organ open to attack, and that is the most serious symptom to be feared. There is practical agreement that diet means very little in the treatment of these cases, but that, above all, the dietary must not be too limited. Children must be tempted to take the cereals in various forms as well as milk, and even meat products must not be denied them as soon as the fever has passed away. In general, there is a noteworthy departure from the idea either of specific medication or of speci-

fic diet for rheumatism, and an emphasis on the opinion that each case must be treated individually and that children must be kept in as good physical condition as possible.

ECHOES AND NEWS.

NEW YORK.

For Consumptives.—The trustees of the Long Island Open Air Sanatorium, to be erected near Medford, L. I., have issued an appeal for funds. The sanatorium will be for the open air treatment of consumptives, and, as it will receive no help from the city, people interested in the cure of tuberculosis are asked to contribute. The sanatorium will be for the use of Brooklyn and Long Island tuberculosis sufferers. In Brooklyn there are over 10,000 consumptives, most of whom are unable to procure proper treatment because of its cost. Patients will be charged only a nominal sum, which in no case will exceed \$6 a week. The estimated cost of the land, building and equipment is \$50,000, and the trustees have thought it desirable to appeal to the public for small contributions. After the money for building and equipping the sanatorium is raised, its projectors think it will be self-supporting. Every person who subscribes \$5 becomes a member of the organization that manages the sanatorium and can vote for the trustees. Contributions will be received by any of the following trustees, all of the Borough of Brooklyn: The Rev. J. F. Carson, of the Central Presbyterian Church; the Rev. S. Parkes Cadman, of the Central Congregational Church; the Rev. Alexander Vance, of St. Michael's Church; and Dr. Horace Greely, of 147 Pacific Street. Checks should be made payable to Dr. H. B. Jones, the treasurer.

What a Doctor Can Do.—Up to four years ago the best thing the Street Cleaning Department could find to do with the stuff collected from the streets and homes of New York was to tow it out to sea and dump it overboard. There was a theory that most of the stuff thus disposed of would sink and the rest be carried away from shore by current and wave. The theory was not held by seaside dwellers. They knew that much of the waste matter drifted in shore, to litter the beaches, breed disease and depreciate the value of real estate. It was a wasteful, a dangerous, a most primitive solution of a problem that every community must tackle, and the Street Cleaning Department, costly and inefficient, was by no means a popular institution. To-day scarcely a trace of the old system remains. Nothing is towed to sea. The positively useless matter is incinerated with as little offence as may be. Everything of value or of use is turned to profit. The ashes and heavy rubbish suitable for the purpose are used to build new land for the city. At Riker's Island eighty-four acres have been made already. Each acre is worth not less than \$10,000. Within four years 185 acres more will have been made, land built up from the bottom, made by the city, adaptable to many municipal uses, and made with what four years ago would have been dumped into the sea at heavy expense. In Brooklyn the city is redeeming the sunken meadows along Coney Island Creek. So far eighty acres at once worthless property has been reclaimed. Now the Government wants to buy ashes from the city to complete the fill at Governors Island. A good record for four years. The lighter rubbish is not wasted. A contractor picks

it over, paying a good price for the privilege. What he rejects goes into the furnaces under the boilers at the Williamsburg Bridge and at the Forty-seventh Street dump. It lights the Williamsburg Bridge, the public schools in the vicinity, the Street Cleaning Department stables. These plants are young now. At the Williamsburg Bridge plant alone a saving in the cost of final disposition of \$75 a day is made, and the light produced is worth \$80 daily. The operating expenses of the plant are paid by the money received for the picking privilege. The investment of city money was \$83,000. The revenue produced by it is \$52,000 a year. This is a return of 63 per cent. a year. Here is natural, legitimate municipal ownership and operation, not exploited as a political issue or a demagogic appeal to class hatred. This is only a page out of the history of the Street Cleaning Department. It tells only a part of the story of the last four years of progress. One man has written it, a man who made a real effort to improve New York, a man who has accomplished something. It is a record to be proud of. On the roster of those who are helping to civilize New York's municipal government the name of Dr. John McGaw Woodbury stands pretty near the top.—*New York Sun*.

Sixth New York State Conference of Charities and Correction.—The Sixth New York State Conference of Charities and Correction, recently in session in New York City, has been marked by a large attendance and a vigorous discussion of some of the more pressing social problems of the commonwealth. Among other topics discussed was the care of the sick and mentally defective. Farm work can play a large part in curing insanity bred in the tenements, according to William Mabon, president of the State Commission in Lunacy, who reported as chairman of the Committee on the Sick and Mentally Defective.

"Occupation," he said, "is one of the most important curative agents used by the medical officers of our hospitals." The two largest farms which differ widely in type and fertility *viz.*, those at Central Islip and Willard, give occupation to hundreds of patients in every kind of farm work, gardening and fruit growing, in grading of grounds, etc., with most excellent results in the improved health of all patients thus engaged. Indeed, Superintendent Smith, of the Central Islip State Hospital, whose patients come from the crowded East Side of New York, reports that the transition from the sedentary occupations followed in the slums to the bracing outdoor work assigned them has brought about some striking results. He reports that 30 per cent. of all cases admitted during the year were discharged as recovered. Perhaps the most signal advance proposed by Dr. Mabon is for emergency hospitals for acute cases. "With the impetus afforded by the provision of funds to establish a reception hospital in the city of New York for 200 patients, the commission in lunacy next proposes to urge upon the legislature at its forthcoming session, the desirability of providing special appropriations for the construction of small acute hospitals, accommodating from sixty to eighty patients each, in connection with such of the existing state hospitals as are not at the present time properly equipped for the care of acute cases. The absolute necessity of providing every possible facility for the cure of curable patients, not to mention the true economy of such procedure, must be apparent to every novice in social economy.

"The wage-earner must, if possible, be restored to his family; he must have medication, adequate nursing, rest in quiet, sunlit rooms, massage, proper diet, diver-

sion, and an intelligent, well-directed effort to divert his mind from every vexing or harassing condition. All this involves a large outlay, but of its wisdom there can be no doubt. The chief difficulty in erecting appropriate buildings of this class lies in the present statutory restrictions of \$500 per capita for buildings and equipment. This will not suffice for buildings for the acute and curable. Probably \$1,000 per capita will be required under plans which have already been prepared under the direction of the commission by the state architect. Delay in recommending the construction of these buildings has resulted from the belief of the commission that the comfortable *housing* of all of the insane was of first importance. With appropriations already in hand, however, accommodations for custodial care of all the insane which it is estimated will require it to October 1, 1906, will be provided, and special attention may then be given to the more important feature of treatment for the acute class."

The utter inadequacy of the present state provision for imbeciles and idiots was brought out. Some of these inmates have had to be transferred to orphanages, adult patients have been domiciled in buildings designed for training defective children, the county almshouses still have to care for 207 feeble-minded women of child-bearing age who should be transferred to custodial asylums, and altogether provision for these unfortunates is still deplorably backward and hampered in New York State.

The Care of the Sick Outside of Institutions.—"Let us deplete the ever-growing supply of mental invalids to the big institutions," said Dr. Bertha A. Rosenfeld, of St. Rose's Settlement, New York City. "Let us prevent many acute cases from becoming chronic by giving them real care from the first. It would be deemed inhuman were a typhoid fever or pneumonia patient obliged to wait two or three days for a legal process before skilled treatment could be given; the same would be the opinion regarding a surgical case. Yet in mental disease there does occur this often fatal delay of necessary care. It is an evil resulting from the legal measures required to prevent any unjust commitment. This protection for the many works injury to some. What is the remedy? Have mental wards in general hospitals. Mental patients are entitled to the consideration of a general hospital. To those in whom delirium and consequent irresponsibility have developed—a general hospital should be open just as surely as to a critical surgical or medical case. The longer a disease goes unchecked, the less power remains in the patient's own system to throw it off. In very many cases of mental illness, fear is an element of the disease itself, and this makes the physician's work more difficult. One of the first steps in the curative process is to establish confidence in the patient's mind. Confidence help to quiet the nervous system, which is a dominant influence in resisting disease. This quieting of the nervous system is accomplished more quickly in a familiar environment with a well-known physician in attendance. Where will these be found? In a general hospital near the patient's own home. Such humane measures exist in the Albany Hospital where ward 'F' deals with mental diseases coming directly, or developing in the other wards. Dr. Mosher's reports show that real care of the insane is given in the Albany Hospital district, the opportunity for such being near at hand. I fully agree with his belief that there can be no greater charity than that which promotes the recovery from acute attacks of mental disorders."

PHILADELPHIA.

Pupils Ordered from School.—Dr. Samuel G. Dixon, Commissioner of Health, ordered that 400 of the pupils attending the schools at Pottsville be forced to remain at home until they had been properly vaccinated. Some of the parents insist that they will not educate their children if vaccination be compulsory.

Meeting of the County Medical Society.—The society held its regular meeting November 22, 1905. The president, Dr. J. M. Anders, occupied the chair. The scientific program was offered by Dr. Joseph Sailer, who read a paper on "The Quantitative Estimation of the Stomach-contents." Dr. J. Dutton Steele read a paper entitled "The Treatment of Some Phases of Gastric Indigestion." Then Dr. John B. Deaver presented a paper on "The Surgical Side of Gastric Indigestion." Dr. Alfred Hand read a paper on "Some of the Manifestations of Congenital Syphilis."

Pathological Society Meeting.—This society held its regular meeting Thursday, November 23, 1905. The president, Dr. W. L. M. Coplin, was in the chair. The first twenty minutes were devoted to the presentation of card specimens. Dr. W. T. Longcope showed a specimen of "Echinococcus of the Lung." Dr. Joseph McFarland presented a specimen which he believes is Echinococcus of the Spleen. Dr. Allen J. Smith showed Daughter Echinococcus Cysts. Dr. Addinell Hewson and Dr. A. G. Ellis showed Echinococcus of the Liver and Kidney. Dr. C. Y. White presented Echinococcus in Animals. Dr. John Funke presented a specimen showing the adhesion of two of the aortic cups which became separated from the arterial wall so that there appeared to be but two leaflets, and a second specimen of hemopericardium incident to the rupture of an aneurism of the first part of the aorta. The first paper was read by Dr. John Funke on the "Chemical and Microscopical Study of Urine During Life, Followed by Histological Examination of the Kidneys from the Same Patients." Dr. Joseph Walsh then read a paper on "Lesions of the Kidneys in Pulmonary Tuberculosis." Dr. Lawrence F. Flick, Dr. M. P. Ravenel and Dr. J. W. Irwin read a paper on "Pneumococci Infection in Relation to Hemorrhage in Pulmonary Tuberculosis." Dr. Albergyer then read a paper on "Cancer of the Bladder with Metastasis."

New Health Director Elected.—The speculation and the prediction with reference to the successor of Dr. Edward Martin was ended Monday when the Mayor announced his selection. In choosing Dr. W. L. M. Coplin, Professor of Pathology and Bacteriology in the Jefferson Medical College, as Director of the Department of Public Health and Charities, the Mayor has indeed made a wise selection, as shown by the work Dr. Coplin has accomplished. That Dr. Coplin is equal to the task before him is perfectly clear to every one associated with him, and to all now under him. He not only has great executive ability, but also possesses good judgment in selecting men to work and to cooperate with him. With the late Dr. E. O. Shakespeare and Dr. John Guiteras, now Professor of Medicine in the University of Havana, Dr. Coplin was appointed by ex-Mayor Stuart to organize the existing Bureau of Bacteriology and to examine the candidates for the appointment in the new department. All the recommendations of the commission were accepted. Later he served on the Civil Service Commission to examine applicants for positions in the department,

but when it became evident that appointments were made without due consideration of the results of the examination he withdrew several years afterward. Under President Harrison he was appointed on the United States Marine Hospital and Public Health Service, acting as Inspector of Immigrants at the time cholera was prevalent in Europe. During the same time he organized in connection with the sugar refineries an emergency service for the care of cases that might develop, and he had charge of the detention of laborers and others who handled infected cargoes coming from Europe. The laboratories of the Jefferson Medical College Hospital were organized, developed and systematized by him.

CHICAGO.

Election of Dr. Andrews.—Dr. Albert H. Andrews has been elected Professor of Otolaryngology and Rhinology in the Chicago Eye, Ear, Nose and Throat College.

An Epidemic of Jaundice.—The Illinois State Board of Health has instituted an investigation in regard to an epidemic of catarrhal jaundice, the cause and nature of which are obscure. The condition seems to prevail particularly in Mount Pulaski and Rushville.

Chicago Urological Society Elects Officers.—At a meeting of this Society, held in October, Dr. Wm. L. Baum was elected President; Dr. Gustav Kolischer, Vice-President, and Dr. J. Allen Patton, Secretary. The Society meets the last Thursday of each month, excepting July, August and September. All regular practitioners in good standing in Cook County, who are interested in medical or surgical urology, are eligible to membership.

State of Chicago's Health.—According to the weekly bulletin of the Chicago Health Department, for the week ended November 18, 510 deaths were reported, equivalent to an annual mortality rate of 13.35 per 1,000. The number of deaths was 31 greater than during the corresponding week of 1904, and 41 greater than for the preceding week of 1905. Pneumonia, for the first time this season, leads the death causes with 77, followed by consumption, with 70; nephritis, with 41; violence, including suicide, 37; heart disease, 36; cancer, with 31, and nervous diseases, with 21.

Panama and Its Health Problems.—Dr. Daniel R. Brower recently gave a lecture on this subject to a lay audience. He said that Panama was not the dangerous and unhealthy place that the world has been told. Five grains of quinine a day will give immunity from malaria, and careful attention to diet, a temperate life, drinking water that is boiled and sleeping in rooms carefully screened will guard against infection by the dreaded mosquito. The greatest cause of sickness in Panama is the disregard of hygienic rules. Most of those who go to the hospitals there are those who have indulged in intoxicants. The fact that 400 soldiers lived on the isthmus for five months with not a single case of sickness is the best proof that Panama is not the unhealthy region it is reputed to be.

New Hospital.—The new hospital of St. Bernard's, Hotel Dieu, was recently dedicated by Archbishop Quigley. This is to be one of the finest institutions of its kind in the city. The project of building was conceived eighteen months ago. The institution has accommodations for 280 patients. The building is 230 feet long and 176 feet deep. It has been made as near fireproof as modern science could accomplish. Five operating rooms have been arranged for, the emergency room to be on the first floor. Four operating

rooms are on the fourth floor. There are five large wards, four small wards and five wards for children. The accommodations for children will be a considerable addition to the facilities of Chicago for taking care of the little ones. The Michael Reese Hospital has done much for them, but more room still is needed. The staff of physicians has not as yet been chosen.

GENERAL

The Late Professor Nencki.—On October 13 a bust of the late Professor M. Nencki was unveiled in the Chemical Department of the Institute of Experimental Medicine, St. Petersburg, of which the deceased scientist was the official head. Professor Pawlow delivered an address, in which he gave a sketch of Professor Nencki's life work.

Congress of Experimental Psychology.—The next meeting of the German Society of Experimental Psychology will be held at Würzburg on April 10 to 13. Reports will be represented on the following subjects: (1) The relations between experimental phonetics and psychology (by E. Krüger); (2) experimental aesthetics (by O. Külpe); (3) the psychology of reading (by F. Schumann); and psychiatry and individual psychology (by R. Sommer).

Some Oslerisms.—A volume of Counsels and Ideals from the Writings of William Osler, Regius Professor of Medicine at Oxford, is announced by Mr. Henry Frowde. It has been compiled by Dr. C. N. B. Camac, of New York, who explains that for his own purposes, in order to renew from time to time the personal influence "which, as pupils and internes, we had come to depend upon," he had for some years made extracts from Dr. Osler's lectures and addresses.

Conference of Medical Men.—At a conference held November 24, in Albany, of representatives of the medical interests of the State it was decided to favor for the present the retention of the three boards of medical examiners as now constituted. This conclusion was reached after representatives of the State medical societies and State medical boards discussed the advisability of substituting a single State medical board for the three now representing their respective schools of medicine. In the matter of the combined baccalaureate and professional course of seven instead of eight years leading to the degree of M.D., the progress made during the past year was approved, and the conference appointed a committee to prepare a syllabus acceptable to the medical colleges of the State and which should be the foundation of an elective course to be introduced into the junior and senior years of the colleges.

The Medical Profession in Japan.—Owing to various causes, the official register of licensed medical practitioners in Japan ceased to be trustworthy some years ago. An investigation as to the number of persons practising medicine and pharmacy was, therefore, made in 1901. It was found on July 31 of that year that the total number of practitioners was 33,508. Of these, 9,733 had passed a recognized examination, 1,297 were graduates of the Imperial University, 2,097 graduates of the higher schools, 2,283 graduates of local medical schools, 883 were licensed on the ground of official experience, and 74 were graduates of foreign medical schools. Of the whole number of practitioners 16,758 were in practice before the establishment of the register, and 401 were licensed to practice only within a limited district. The number of licenses to practice issued during 1901 was 1,219, of which 702 were granted to persons who had passed a qualifying

examination, 36 to graduates of the Imperial University, 274 to graduates of the higher schools, 202 to graduates of local medical schools, 4 to graduates of foreign schools, and 1 to a person previously in practice. During the year 863 practitioners died. As compared with 1900 there was a decrease of 7,416 in the number of registered practitioners; this is attributable not so much to any marked decrease in the number of persons entering the profession as to the wholesale weeding out of deceased or retired practitioners whose names still appeared on the list. The proportion of practitioners to population was for the whole of Japan 7.32 to every 10,000. The proportion in Tokio was 11.61, in Kochi 11.61, and in Ishikawa 10.79 to every 10,000 inhabitants.

Dr. Hemmeter Honored.—"There is nothing in the medical profession which can claim from its devotees a sundering of those ties which bind all human beings in their social relations. . . . You have demonstrated in your life the great truth that a man may be a great physician, yet eminent in other walks of life, cultivating to a high degree a love of the beautiful and good, as well as the true. Therefore, appreciation of intellect and of broad manhood alike prompted this testimonial from your friends." Thus, in the presence of a number of the foremost practitioners, clinicians and educators of the East, spoke Supervising Surgeon-General Walter Wyman, of the United States Marine Hospital Service, on behalf of the 95 subscribers, in presenting to Prof. John C. Hemmeter a handsome oil painting of himself in commemoration of the twentieth anniversary of his doctorate. In replying, Dr. Hemmeter made an appeal for "idealism in medicine," because, as he expressed it, he "was becoming impressed with the conviction that the sphere of action of the medical man is threatening to become too narrow and that disregard for high ideals in medicine has led to the temptation of too narrow an exclusiveness for the applied feature of this art of science, and that a disregard for ideals cannot fail to develop commercialism in medicine."

Prof. Thomas A. Ashby, of the University of Maryland, introduced General Wyman, who said, in part:

"I deem myself fortunate in having been selected by your friends to present to you this fine portrait in oil, commemorative of the twentieth anniversary of your doctorate. It has been a great pleasure to the committee, and especially myself, to have been able to participate in the work of this evening, and to unite in one expression the sentiments of your many professional admirers throughout the United States. It has been our effort to gather in this testimonial not only your own former and post-graduate pupils, but representative clinicians in other cities; and we made no appeal to your confrères in Baltimore, except when a request to that effect was received. We in other cities look upon this testimonial as an indication that the University of Maryland has taken a position among the leading institutions of medical learning in the country, having produced such leaders in medical research as Councilman A. C. Abbott, William T. Howard, Jr., Hemmeter and many others, and has had at all times some of the most effective clinicians and surgeons in its faculty. The fame of the alma mater is inseparably connected with and even depends upon the character of the work of its alumni. And in this connection we delight in the words which Notnagel wrote to the publishers of Dr. Hemmeter's works: 'They are the products of a

master clinician; an inspiring teacher; an ornament to American medicine.'" Drs. Thomas A. Ashby and Charles G. Hill also spoke, thanking the committee for its efforts and praising Dr. Hemmeter and his work. In accepting the portrait, Dr. Hemmeter said: "I am beginning to feel a grudge against my Hopkins Association friends. During the spring, on hearing of an honorary LL.D. to be conferred, a friend said to me, 'Now, Hemmeter, it is time to buy a lot in the cemetery.' Such public honors mark the decline of activity. These distinctions occurring in the same year that a well-known medical writer has dedicated his work to me, together with the presentation of this artistic portrait have made me reflect seriously upon Dr. Osler's 'fixed idea,' namely, that 'men are comparatively useless after forty.' The 'fixed idea' reminds me that I too have a dominant conviction, which is 'idealism in medicine.'" During a long residence in Germany and under the edifying influence of inspiring teachers I have become impressed with the conviction that the sphere of action to the medical man is threatening to become too narrow. Starting from the assumption that the field of work for the Æsculapiad is part of that great objective world of law and order, the profession is not sufficiently realizing that the whole of nature does not consist of matter and motion alone, nor of spirit and will alone, but of both. Scholars and practitioners in medicine have been keenly alive to law and knowledge and material fact, but they have been occasionally blind to art, to poetry, to emotion, to the philosophy of the classics and to the higher mental and spiritual environment which inspires and glorifies the realms of their magnificent science. Disregard for high ideals in medicine has led to the temptations in the direction of too narrow an exclusiveness for the practical aspect and applied features of this art and science. This disregard for ideals cannot fail to develop commercialism in medicine, a vice already strongly raising its head through the multiplicity of medical schools in this country. One of my cherished wishes is for the reduction of the number of medical schools by consolidation of three of the leading institutions. Those of us who have the conduct of these schools as part of our duties should not be hopeless of attaining this end, for reason and the collective wisdom of our representative medical colleagues should soon find some effective means of bearing down those obstacles, which individual shortsightedness, selfishness and passion oppose to all improvements and by which the highest hopes are continually blighted and the fairest prospects marred."

OBITUARY.

Dr. J. A. BICKERS, sixty-nine years old, of Madison, Va., died in the Astor House, New York City, last week, from a paralytic shock.

Dr. EMMA D. L. BURD, of Yonkers, died in that city on November 22 after a short illness in her sixty-second year. She was born in Brooklyn and was graduated from the University of the State of New York in 1891. Her father and grandfather were physicians, and she took up the study of medicine as a hobby. She leaves seven daughters, five of whom are married.

Dr. CLARENCE W. BARTOW, of the house staff of Roosevelt Hospital, the surgeon who was killed last week, when his ambulance was struck by an automobile, was born twenty-six years ago in Astoria, L. I., the son of Jacob Field Bartow. He was edu-

cated at Columbia, and was graduated from the College of Physicians and Surgeons last June. He was a member of the Psi Upsilon fraternity.

Prof. ALBERT VON KÖLLIKER died at Würzburg on November 1 at the advanced age of eighty-eight years, the last survivor of the group who were the founders of modern biology, the other members being Schwann, Schleiden and Virchow. Albert von Kölliker was born in 1817 at Zürich in Switzerland, and studied medicine at the university of that city. He then came to Berlin as an assistant to the celebrated anatomist, Professor Johannes von Müller. From Berlin he returned home and became an assistant to Professor von Henle, the author of the great handbook of descriptive anatomy. In 1843 he was recognized as a *privat-docent*, and in 1845 he was promoted to be extraordinary professor of comparative anatomy and physiology. He only held this appointment for two years, as in 1847 he was called upon to take the chair of anatomy and physiology at the University of Würzburg, then one of the principal centers of medical learning in Germany, where men such as Virchow, Bamberger and Scanzoni attracted medical students from every country of Europe. Kölliker on going to Würzburg made his students acquainted with the most recent advances in biology and reformed medical study by introducing practical work in microscopical anatomy and lectures on evolution. Until 1866 the conditions of his professorship combined the teaching of anatomy and physiology according to the custom of the time, but after that year he no longer lectured on physiology, which became a special branch of the medical curriculum. Notwithstanding his advanced age, he was fully occupied with the duties of his chair until 1898, when he discontinued his lectures on anatomy; he, however, lectured on the theory of evolution till 1901, when he retired altogether into private life. He passed his remaining days at Würzburg and devoted his leisure to writing an autobiography under the modest title of "Erinnerungen aus meinem Leben" ("Recollections of My Life"). By his death biology in general and anatomy in particular have lost one of their greatest exponents, a worker who extended their boundaries and contributed much to the revealing of the secrets of nature. His scientific work is very extensive, including histology and evolution, descriptive and comparative anatomy, physiology and zoology. He made most important researches in cellular histology, relative especially to the cell nucleus; other important studies were connected with the spermatozoa, the nervous ganglia and the sympathetic nerves. He increased our knowledge of the anatomy of the liver, of bones, and of the eye, and applied himself to the study of comparative anatomy and zoology. Apart from these special researches, he has published two great works—namely, his renowned "Handbook of Human Histology," which still is one of the standard treatises on the subject, and a text-book on evolution. Professor von Kölliker's death is not only a heavy loss for science, but also for the city, of which he has been a celebrity for more than half a century, and for his friends who loved him for his personal qualities.

Death of a Medical Explorer.—Medical men have been among the most conspicuous pioneers in the exploration of unknown lands, and the names of doctors are writ large in the history of colonization. The most casual mention of the subject recalls the names of Mungo Park, David Livingstone, Sir John

Rae, Emin Pacha and Sir John Kirk, to mention only the first that come to mind. Another has recently passed away in the person of Dr. Jean Marie Bayol. Born in 1849, he entered the French navy as a medical officer. He was attached to the expedition under Captain (now General) Gallieni, who in 1880 was commissioned to explore the region of Africa extending from the confluence of the Bafing and Bakoy rivers to Bamako on the Niger. He was afterwards placed in charge of an expedition to the Fouta-Djallon region, now French Guinea, and he succeeded in getting it officially recognized as a French protectorate. Having taken a prominent part in extending French influence in Central and West Africa, Dr. Bayol was, about 1889, appointed Lieutenant-Governor of the Rivières du Sud provinces and dependencies. In that capacity he visited Dahomey with the object of negotiating a fresh treaty with King Gle-Gle, who had refused to be bound by one made with France in 1878. It was an arduous and dangerous undertaking. Although the King consulted him nearly every day about his health, Bayol had to endure much insolence at the hands of the heir to the throne. He was forced to walk between two rows of human heads just cut off, and to be present at human sacrifices. The mission was a failure, Prince Kondo declaring that since France had chosen to allow itself to be governed by a woman—to wit, the Republic—treaties previously signed with that country might be regarded as null and void. The king died, and was succeeded by Kondo, who took the name of Behanzin. His attitude toward the French became so aggressive that a punitive expedition had to be sent out under General Dodds. Dr. Bayol again narrowly escaped death at the hands of hostile natives when he was Governor of the Benin Settlements on the Ivory Coast. Owing to failing health, Dr. Bayol retired a few years ago with the title of Honorary Colonial Governor, and returned to France. His energetic spirit would not, however, allow him to stand aloof from public life. He was elected to the General Council of the Bouches-du-Rhône Department, which he afterward represented in the French Senate. His name deserves to be added to the ever-lengthening list of members of our profession who have done splendid service to their country as explorers and administrators *in partibus infidelium*.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

MEDICAL EDUCATION—AN EPISCOPAL UTTERANCE ON CHRISTIAN SCIENCE.

LONDON, November 18.

SPEAKING the other night at a dinner of that historic and useful body, the Apothecaries' Society, Mr. John Tweedy, President of the Royal College of Surgeons of England, took occasion to unburden his soul on the subject of medical education. He boldly declared that too much was being done in multiplication and increased stringency of examinations, and he would gladly see some mitigation of the ordeal through which medical students had to pass on their way to a diploma, without bating a jot of the requirements that really make for efficiency. He expressed the belief that if some of the restrictions and regulations were relaxed, a better class of practitioners than is turned out under the present system would be

produced. The student is overtaught and overexamined to an extent which leaves him no time for reflection or for the proper exercise of his intellect. The whole system, said the president, is one of "rush and cram." Mr. Tweedy laid the blame on the General Medical Council which had become more and more exacting in its demands. This has led to something like a rebellion on the part of the Colleges of Physicians and Surgeons which tried to resist what they called the "encroachment" of the council on their right to manage their examinations in their own way. The colleges have had to submit, but they have not done so with good grace. The fact is that these bodies, with the Apothecaries' Society, had almost a monopoly in England of the profitable business of selling licences to practice the art of healing. To insist on too high a standard of knowledge was bad for their trade; hence the tears of the president of the College of Surgeons, who had to admit that there is a steady falling off in its business. The colleges might have fought the council successfully had not their monopoly been destroyed by the creation of a number of new universities. These are already formidable competitors in the licensing market, and before long, owing to their superior advantages, they will take away all custom from the colleges who can only give a diploma that does not carry with it the coveted title of Dr. which they can offer in the form of the M.D. degree. Mr. Tweedy is not unnaturally angry at what he calls the "mushroom-like growth of universities throughout the land," and he hints that they ought not to have the power of granting degrees in themselves giving the license to practice. He professed to believe that medical examinations were best entrusted to medical corporations, for the reason that "the working practitioners of medicine are best qualified to regulate medical examinations and fix the standard. It is deplorable to see a really able man like Mr. Tweedy forced by the exigencies of his official position to use an argument which can only be characterized as disingenuous, for he must know that the examiners in the universities are just as much "working practitioners" as those of the Colleges of Physicians and Surgeons; in fact, they are often the self-same men. Mr. Tweedy lamented the fact that the number of medical students had, at least in England, declined during the past ten years, and he foretold that the decline would continue. It may safely be said, however, that this decline is looked upon by the medical profession as by no means an unmixed evil.

Christian Science which a dozen years ago was an unknown thing in this country, has now some fifteen churches dedicated to the cult of Mother Eddy. Three of these are in London, and the members are said to number a thousand, without reckoning several thousand "adherents" who like the Peri stand at the gate of Paradise without entering. Among the devotees are several people who in point of intellectual culture are considerably above the average. One of the most notable is Mrs. Butter, the wife of the Master of Trinity College, Cambridge. She was a Miss Ramsay and gained great academic fame by taking the first place in the classical Tripos—which is considered here a very remarkable achievement—some years ago. Her triumph was the more noteworthy inasmuch as she had not begun the study of Greek till she was seventeen. Within the Church of England itself there is a section, including a number of clergymen, who while not formally subscribing to the teachings of Mrs. Eddy, hold that the principle on which her doctrine is based is true. In their opinion it represents a power lost to the church,

and they are working towards the recovery of that power by doing their utmost to spread belief in faith healing. This fact supplies the interpretation of a recent deliverance by the Bishop of London on Christian Science. Addressing a meeting of the Women's London Diocesan Association on November 11th he endeavored to make his audience realize the longing of the sick for visits which opened a way for possibly healing effects. In every one, he said, there was a personality which in time of sickness might be strengthened to bear, and even to triumph over pain. In illustration of this statement, the Bishop related an incident which had come under his notice. The wife of one of his clergymen was recently faced with the appalling prospect of having within two days to undergo an operation which might cost her her life. When he (the Bishop) called upon her, he found here in a state of moral collapse; partly owing to fear and partly to other causes, her faith and hope were entirely gone, and the physicians and surgeons recognized that it would be impossible for the operation to be performed while she was in that state. He would pass over the sacred half-hour that he spent with her, but it was a fact that two days later she walked from her room to the operating table without a quiver. The surgeons exclaimed: "What has the Bishop of London done to you?" She replied in simple, straightforward words: "Something which none of you could have done." To her inmost being, where the faith and the hope and the courage had died down and crumbled, with God's help alone he had brought to her that reinvigoration of her central being which she needed, and the effect of bringing the power of God to her central being brought back again her faith, her hope and her courage, and she became again a Christian woman who could look death and trial in the face. In many instances, when one invigorated the faith, the hope and the courage of a sufferer, one thereby wrought a great effect on the bodily condition of the patient. These he believed to be absolutely true, and he believed they lay at the basis of the success—so far as it went—and the prevalence of Christian Science; but when one went on to other points on Christian Science one was erecting a real truth—he said it deliberately—into a gigantic heresy. We had to learn from heresies to-day as we had learned from them in times past; there was not one single heresy that had ever existed that was not recalling the church to some forgotten truth; and every heresy lived upon the element of truth which it contained. What he wished to say to them as church workers was, "Keep the truth." The clergy ought to approach the bedsides of the sick with far more faith; they ought to pray for the recovery and lay hands on them with far more expectancy that they would recover; in doing their sick visiting they ought to look with far more hope for the recovery of the patients and not look alone to the preparation of the soul for death. The Bishop said he knew that there were present one or two who thought they had special gifts of healing. As their Bishop he put it to them that they must never try to exercise those gifts apart from the medical profession. It would be observed in the little story he had told that he never suggested that the woman should not undergo the operation which was so essential to her cure. He wished the medical profession to understand that the church regarded their healing art as a sacred thing. When he was ill he felt that the doctor who came to him was as much sent by Jesus Christ as the clergyman who called to visit him. As Christian ministers they ought to ask for and demand a right to have their place in the sick room allotted to them

by doctors. Of course, they must exercise tact and discretion, but it would be an ill-return for the honor the clergy were seeking to give the healing art if they were to be excluded from the sick rooms of either the wealthy or the poor. As might have been expected, on the strength of this utterance, the Bishop is claimed by the Christian Scientists to be one of themselves. If, they say, he had adopted the advice which he gave to pray for the recovery of the sick, he would have found, as they claimed to have found in hundreds of cases, that no operation was necessary; that faith alone was sufficient. This is an example of the evolution of dogma of which theologians speak, for in the book which is the Holy Writ of the Sect, the prophetess expressly excludes surgery from the scope of her treatment.

SPECIAL ARTICLE.

PRELIMINARY REPORT OF A SANITARY INVESTIGATION OF THE AIR OF THE NEW YORK RAPID TRANSIT SUBWAY COVERING THE MONTHS OF JULY-SEPTEMBER, INCLUSIVE.

BY GEORGE A. SOPER, PH.D.,
OF NEW YORK.

ALEXANDER E. ORR, Esq., President,
Board of Rapid Transit Railroad Commissioners,
320 Broadway, New York.

SIR: In order to convey a clear idea of the results so far obtained in my investigation of the sanitary condition of the air of the subway, it will be desirable first to consider briefly the scope of the investigation and then proceed directly to the conclusions. A more detailed account of the methods and data, and a full interpretation of them, will be reserved for my final report.

SCOPE OF THE INVESTIGATION.

The principal questions investigated have been the temperature, humidity, odor, bacteria and dust of the air of the subway. In studying each of these subjects the plan has been to obtain an accurate knowledge of, first, the conditions which actually exist; second, the cause of these conditions; third, what, if any, is the remedy required.

No attempt has been made to devise a comprehensive system of ventilation or cooling, this being understood to be beyond the scope of the service desired of me. My single expression of opinion in this direction has been that considerable benefit would result if provision could be made for larger and more direct openings from some of the subway stations to the outside air. In the present report this statement is repeated and supplemented by the opinion that the ultimate solution of the problem of a cool subway must lie in mechanical improvements which will prevent the production of the heat through a more economical employment of the power used to operate the road.

Experiments with fans and other ventilating devices, carried on under Mr. Rice's direction, have been observed by me, and their effects, as far as determinable by my analyses of the air, have been reported to him.

PRINCIPAL RESULTS OF THE INVESTIGATION.

Regarded as a whole, the results so far obtained contain little cause for alarm concerning the sanitary condition of the air of the subway. During the period of my observations the air has been renewed with sufficient frequency to assure an ample supply

of oxygen and prevent the detection of unpleasant odors due to the large number of people who have been present in the subway. Odors from other causes have, however, occurred. The principal objection to the air has been its high temperature. The sanitary significance of the presence of black dust and of the bacteria which are contained in the air, however, still remains to be settled.

Heat and Humidity.—Throughout the period of this investigation, the subway has been decidedly warmer than the outside air. The average temperature for the day-time for the three months was, for the subway, 79.8° F., and for the air in the streets, 72.8° F.; difference, 7° F. The highest temperature observed in the subway was 90.6° F.

The hottest week was that of August 4 to 10, inclusive. The average daily temperature for the subway during this time was 83.1° F. For the outside air it was 73.2° F., the difference being 9.9° F. The maximum temperature observed in the subway this week was 88.5° F.; in the streets, 88.2° F.

The air of the subway has generally been less humid than the air of the streets. The average humidity for the three months was 56.2 per cent. The hottest week was also the most humid in the subway, the percentage of relative humidity having been for the week of August 4 to 10, 75.2 per cent.

The high temperature of the subway is due chiefly to the amount of power which, in one way or another, is converted into heat in operating the road. Most of it comes from the motors and friction brakes on the cars. Theoretically, it represents wasted energy. No remedy seems ready to hand for this trouble. It is a new difficulty in the operation of subways and is attributable to the large amount of electric power used on the road. The most hopeful direction to seek immediate relief from the heat lies, in my judgment, in the alteration of some of the stations, so that greater benefit will result from the combined ventilating effect produced by the movement of the trains and the breezes of the streets. Had it not been for the flushing action which was produced already in this way, the subway would undoubtedly have been much warmer last summer.

It would seem that the ultimate solution of the difficulty of overheating must lie in mechanical improvements which will prevent the production of so much heat through the great loss of energy which now occurs when the trains are stopped and started. A subject which seems worthy of consideration in this connection is the idea of regenerative control. Again, a lower speed from station to station would prevent the production of so much heat from the motors and brake shoes. This should be possible without sacrificing the actual running time, by improved means of loading and unloading the cars.

Ventilation.—There has been, on an average, far more fresh air in the subway than is necessary to satisfy the standards established by sanitary authorities for theaters, halls and other places of assembly. The air in the cars has been somewhat less satisfactory, depending on the amount of crowding. The test employed to measure the amount of ventilation has been the estimation of carbon dioxide present by the method of Pettenkofer. The average of 721 analyses gave for the air of the subway 4.58, and for the air of the streets 3.45 parts of carbon dioxide per 10,000 volumes of air, the difference being 1.13. The largest amount found on any occasion in the subway was 7.81.

There was so slight a difference between the amount of oxygen present in the subway and outside air that the employment of this test as a routine procedure was discontinued after about eighty analyses had been made. The difference between the smallest amount of oxygen found in the subway and the greatest amount found out of doors was .7 per cent. The average for the subway was 20.6 per cent., and for the outside air, 20.71 per cent.

The frequency with which the air is changed in the subway is attributable, in my view, to the currents set up by the action of the trains and breezes above ground coming through stairways and other openings to the stations and streets.

Odors.—The air of the subway has at nearly all times and places possessed a noticeable odor. There is not, in reality, a single odor, but a number of them. The odors of the subway are attributable principally to conditions due to the newness of the structure and its equipment, and are largely susceptible of elimination. They are traceable principally to volatile substances given off by paints, cements, lubricating oil, hot boxes and a chemical deodorant used in the toilet rooms. The presence in the air of black dust is also accountable for a part of what is generally taken to be odor.

Dust.—The amount and character of the black dust in the subway is a matter of considerable importance. Chemical analysis of this dust shows that it contains 62.78 per cent. of metallic iron. Microscopic analysis shows that the particles range from fragments which can almost be seen with the naked eyes to pieces less than 1-25,000 of an inch in diameter. Most of this pulverized iron is due to the grinding up of brake shoes, the daily loss in weight of which is surprisingly large. Dust of the same kind has made at least one other subway dark and grimy in appearance. In another case, the gradual accumulation of iron dust is said to have seriously interfered with the insulation of the electric current.

It is important, in my view, to take notice of the presence of this iron dust both because of the possibility of its affecting the health of persons who must continually breathe it and on account of the black stain which it imparts to the light-colored portions of the subway structure, cars, booths and other furniture, and the persons of the employees and passengers.

Because of the presence of about 1 per cent. of oil which the dust contains, it gains secure lodgment upon all surfaces, and, being of a black color, forms an unsightly smudge which is difficult to remove. An amount of this dust which is too small to be weighed with accuracy is capable of producing a black mark upon white linen which can be seen at a distance of twenty feet. If this linen is moistened with perspiration or water, a yellow stain is produced. Straw hats and the light-colored garments worn by passengers of both sexes in summer are, therefore, liable to be soiled by coming in contact with even small accumulations of the dust. The actual weight of black dust in a cubic foot of the atmosphere at any time is slight. It would undoubtedly be greater if the ventilation of the subway was any less effective. Mainly because of the possibility that it may be injurious to health when breathed continually through long periods of time, the subject of dust and its prevention is now receiving my special attention. It would appear that in order to prevent the formation of the dust, a less heavy use of the friction brake would be required.

Bacteria.—There have generally been fewer bacteria in the air of the subway than in the air of the streets, but occasionally there have been more. A study of the results of 2,600 tests shows that the average number of bacteria which were deposited per minute upon a square foot of surface and were subsequently capable of growing at the temperature of the human body was for the subway 750, and for the air of the streets 1,200. Although it is not improbable that the bacteria in the subway belong, for the most part, to the same species as those above ground, the study of this subject has not yet reached a point which will justify a positive statement concerning its sanitary significance.

Other Sanitary Observations.—A number of sanitary observations of less importance than the foregoing have been made. As a result of these, the three following suggestions are respectfully submitted as especially worthy of your consideration at the present time.

1. That the ballast of the roadbed which has become saturated with oil from the machinery of the cars and has accumulated a quantity of small refuse from the stations, and passengers should be renewed at the stations, or better, replaced with a smooth concrete surface which can easily be cleaned. In order to protect the roadbed against oil in the future, the use of larger drip-pans beneath the cars and more frequent inspections are suggested.

2. That the stations be cleaned and cared for in a more systematic and thorough manner. The suggestions made by the Board of Health with respect to this matter are strongly recommended for adoption, except as to the use of disinfectants; with strict cleanliness, these should not, in my judgment, be necessary. A copy of the Board of Health suggestions is herewith appended.

3. That the toilet rooms be equipped with suitable means of ventilation and that they be kept in a more strictly sanitary condition.

Respectfully submitted,

October 19, 1905.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

ORTHOPEDIC SECTION.

Regular Meeting held October 17, 1905.

The President, Homer Gibney, M.D., in the Chair.

Ulnar Nerve Suture.—Dr. Hibbs presented a boy ten years old, admitted to the hospital February 21, this year, giving a history of having had some injury, a fracture of the forearm, following which he had an extensive suppurative process causing what seemed then a paralysis of the ulnar nerve—typical claw hand, loss of power in the extensors. The ulnar nerve was cut down upon, an extensive cicatrix was encountered which was evidently the cause of the paralysis. That operation was performed March 8. The neurologists at the hospital noticed immediately after operation (March 12) changes in the color of the hand and evidence of improved circulation and sensation, and since that time it has seemed to me, as well, that the boy is steadily improving. Dr. Hibbs would like suggestions as to further treatment, or what is thought of the prognosis. He has a second child with a very similar lesion, due evidently to the plaster having been applied too tightly after fracture of the arm.

Multiple Exostoses.—The second case may not be of great interest, but it is rather out of the ordinary. This little fellow was admitted to the hospital a few days ago; aged thirteen years. Multiple exostoses—numerous bony tumors appear extensively over the body, an enormous one on his scapula, which was removed seven or eight years ago but reappeared, and now involves the whole scapula. It is interesting for two or three reasons—first, because of the age, and because there are so many of the tumors. Then the case is interesting on account of the one removed and subsequent recurrence. A very good X-ray picture of it was taken, which was instructive in showing the very spongy character of the bone. The speaker had supposed, probably incorrectly, that they were very hard and had much the character of bone.

Dr. Henry W. Frauenthal showed pictures of a case of gonorrheal infection of the ankles, and of a case in which both knees, both hips, both ankles and one elbow were involved—a mixed infection of probable gonorrheal origin in which he attempted to correct the deformity under an anesthetic, and without any great physical effort this was partially accomplished. He was put in plaster and an acute process was set up—he had no temperature for twenty-four hours—then endopericarditis with a temperature of $108\frac{1}{2}$ and died.

Periostitis of Tibia.—Dr. Myers presented a case of a little colored boy a year and nine months old when he came into the hospital in February, 1905; could obtain no history at all. He was in very good condition at the time, except for the acute condition, and that was very acute and extensive periostitis of the tibia. Very weak pulse, and septic. This thing had been of very short duration; the people in charge said only two or three days. It was opened from one end to the other with a discharge of thick yellow pus, culture showing pure staphylococcus. Temperature 103° or 104° F. at that time, and Dr. Phelps' method was used, raking the whole area with pure carbolic acid for about twenty seconds, wiping out with absolute alcohol, afterward with iodoform. Two days later the temperature fell. Abscess on right humerus above and behind the external condyle. The house surgeon attended to it. The abscess was opened and the same kind of pus evacuated. When the child was convalescent, the sinus in the leg was still discharging—a sinus at elbow discharging a little, but enough to warrant operation. He attacked that wound and found a cavity in the humerus about the size of an ordinary marble and that the lower and upper ends of the divided nerve had enlarged to twice their size and were adherent to the periosteum on either side of abscess, so that perhaps there was one-half inch separation of the two ends. The bulbous ends were so markedly pathological that those were cut off and that left them separated about one and one-half inch. The speaker said he thought he could get a branch of the artery and bridge over the gap, but found he could get the ends together and suture them, and then the abscess discharging almost at that point was an obstacle, and by separating the nerve from the abscess and putting in tissue and packing the abscess off from the nerve, and putting plaster-of-Paris splint on to hold the arm flexed and bound down to the trunk so it would have no motion at all, this was overcome. The splint was kept on from May until the latter part of July when it was removed. At that time the child could hold his hand extended but could not hyperextend it. Returning from vacation found that, as now, he apparently uses one hand as well as the other. At the first examination he had

total wrist drop and absence of sensation. A couple of pieces of bone had been taken out. The shaft was left in the splint until more or less healing took place, when it was removed.

Clubfoot.—Dr. A. B. Judson reported a case as follows: A few years ago I saw a patient, a girl of nineteen years, who complained of inability to walk from a painful condition of the left knee. I found evidences of infantile paralysis of the left foot and an inclination of that foot to varus. As we have pain in the stomach from Potts' disease and pain in the knee from hip disease, why not pain in the knees from clubfoot? But I found a very good logical reason for connecting the pain in the knee with the deformity of the foot. She had grown up in the habit of walking with the limb considerably abducted in order to bring the sole instead of the outer border of the foot to the ground. In this way she had unwittingly avoided the customary callus and had escaped having rigid equinovarus. As she grew to be a large and very stout girl her increasing weight, falling on an abducted limb, had disabled her by producing a painful genu-valgum, for which she was compelled to apply for relief. I found a rather short tendo Achilles, the left calf one inch smaller than the right and a small callus on the outer border near the little toe. It was with difficulty that she was made to see that the trouble was in the foot and not in the knee. After a time, however, she wore a clubfoot brace, which directed the sole of the foot squarely to the ground. This improved her gait at once and led her to give up abducting the limb, and of course the trouble at the knee disappeared. This is the only really unusual feature in this case. If she could have followed advice and worn the brace as a curative appliance the deformity might have been removed and the brace might have been laid aside. There is little doubt that this could have been done. The condition was very far from that of rigid or inveterate clubfoot. The parts were still flexible, as her peculiar manner of walking had brought her weight on the foot in a nearly normal direction. But the opportunity was not given to overcorrect the position and reduce the deformity. The sequel is that she is now thirty-two years old, the mother of an increasing family, and will continue to wear the brace, which, as is evident from this duplicate, is heavy ($2\frac{1}{2}$ pounds) and apparently an inconvenient thing to carry. But she is glad to have it, and says she cannot walk without it. The brace gives her a strong gait, almost free from defect. The case reminds one of the difference between wearing a brace with a therapeutic end in view and wearing one as a purely prosthetic apparatus.

Dr. H. W. Frauenthal, in the discussion on Dr. Hibbs' case of ulnar nerve suture, said he thought a method in use at the Massachusetts General in educating partially paralyzed children might be of use in Dr. Hibbs' case—that is, have the child concentrate his mind and touch various objects at the beat of a clock or of an instrument that beats time for instrumental music.

Dr. Myers said, on Dr. Hibbs' case of multiple exostoses, that it was very interesting and seemed to him one of the few instances he had seen in which the child could improve by operative procedure. He thought the shoulder tumor could be removed with very great benefit. Whereas the function of the arm is not very much interfered with, the deformity is marked. He had not examined the knees very closely, but he thought their function was not interfered with.

Dr. Nathan said he would like to call attention to the fact that the cartilaginous exostoses in this case

closely follow the epiphyseal line, showing they come from cartilage—are originally a disease of the epiphyses—growing cartilage.

Dr. Ashley said he had five or six cases in the same family—the grandmother, the mother and her two children and a brother. He spoke of this in the meeting of the Association at Boston, where a paper was offered by Dr. Young, of Philadelphia. The grandmother had one exostosis on the right ulnar. The arm was very much shortened, but useful.

Dr. Jaeger said one point not mentioned was the bowing of the ulnar that seems to take place, and shortening of the arm. The case Dr. Ashley spoke of attracted his attention because of the short arm, when he was under treatment at the Vanderbilt.

Dr. Hibbs said that in regard to the exostoses, his idea was to remove them one at a time and get rid of as many as were very conspicuous or interfering in any way with walking.

Osteo-arthritis Deformans.—Dr. Frauenthal exhibited this case. Affection of both hips, two years' standing. Dr. Homer Gibney said that the case seemed to him to be one of the group described by Goldthwaite, of Boston, slipping backward or forward of sacro-iliac synchondrosis.

Dr. Nathan said the trochanter was above Nelaton's line, no limitation in flexion or extension, some in rotation. A process coming on in the head of the femur would not have that effect. One would imagine from the symptoms that she had osteo-arthritis deformans of the hip, rather than infection.

Clubfoot.—Dr. Judson replied to Mr. Myers' question as to whether there was any visible change in the knee, saying he examined it, and found nothing objective about it except that it was a case of knock-knee and so painful she could hardly walk. It is a very interesting question Dr. Myers raised, whether there may not be some nervous connection between deformities of clubfoot and important joints like the knee. Perhaps we could expect to have pain in the knee from clubfoot as in hip disease. Dr. Myers said, in answer to Dr. Judson's question, that he did not think the condition parallel with hip disease. "As he understood it, the pain in the knee of hip disease was due to irritation of the nerve, but in this case he thought it due to straining of the joint ligaments bearing the unusual part of the cartilage, as in flatfoot.

Dr. Ashley exhibited to the Section a series of celluloid jackets and corsets, and foot plates, claiming durability and lightness as commendable features.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held Thursday, September 7, 1905.

The President, Wilmer Krusen, M.D., in the Chair.

Report of Gynecological and Obstretrical Cases.

Dr. Frank C. Hammond reported the following cases of this character: *Case I.*—Carcinoma of the cervix localized in the cervical canal at the internal os associated with multiple fibroids in a multipara, fifty-one years of age. Panhysterectomy was done and recovery ensued. *Case II.*—Puerperal sepsis. The attending physician had allowed a lapse of four days before emptying the bladder. The bladder was so distended that it was impossible to introduce the examining fingers into the vagina until the bladder was half emptied by catheter. The patient passed into coma, a large part of the placenta was in the uterus, and death followed. *Case III.*—Hypertrophic elongation of the cervix in a single girl, aged nineteen years. The cervix was am-

putated, followed by relief of symptoms. *Case IV.*—Extensive lacerations of vulva and anterior vaginal wall, without injury to urethra. The condition was the result of falling astride the corner of a step. Immediate suture was employed. *Case V.*—Severe mercurialism due to excessive use of very strong bichloride vaginal douches in the hope of producing an abortion. The uterus was curetted for incomplete abortion. During the first six days after symptoms of mercurialism appeared only five ounces of urine were secreted, secured by catheterization. *Case VI.*—Primipara forty-three years of age. The labor and puerperium were normal. *Case VII.*—Displacement of the uterus anteriorly above the symphysis due to a marked fecal impaction in the rectum, but there was no obstruction of the bowel. The fecal mass was broken up with the finger and dislodged. *Case VIII.*—Cleft palate, hard and soft, without harelip. This was the second child in the same family similarly afflicted. *Case IX.*—A case of supernumerary digits. The anomaly could be traced back for three generations on the maternal side.

Dr. J. W. West emphasized the importance in the treatment of obstetrical cases, when dependent upon untrained nurses, of giving careful instructions about all douches and enemata employed. He referred to two cases in which untrained nurses had substituted 1-1,000 bichloride solution for soap and water in rectal injections. Although there was ultimate recovery, one of the women was so desperately ill that life was despaired of.

Aseptic Management of the Umbilical Cord.

Dr. J. Thompson Schell said that in this aseptic era it seemed passing strange that so little attention had been paid to the aseptic management of the umbilical stump. Good results, he said, were reported by Dr. Dickinson, of Brooklyn, and Dr. C. S. Bacon, of Chicago, and the method advocated was the same as advised by Dr. Schell, as follows: Upon the delivery of the child he placed a hemostat on the cord three inches from the abdominal wall and a second hemostat about one inch from the first and the cord was severed between. The child was then laid to one side wrapped in its receiving blanket while the placenta was delivered and the mother attended to. The cord was afterward amputated by grasping the hemostatic forceps in one hand and with a sharp pointed scissors the cord was severed at its skin-amniotic junction and the amniotic covering and Wharton's jelly were then separated from the vessels of the cord by stripping them back with a piece of gauze in a direction away from the abdominal wall. The vessels were then ligated with a piece of No. 0 sterile catgut and the cord was dusted with an anti-septic dusting powder. The baby, he said, was not placed in the tub for about ten days.

Dr. Frank C. Hammond asked what relationship there was between this method of tying the cord and the occurrence of umbilical hernia in comparison to the old method.

Dr. Charles S. Barnes inquired whether Dr. Schell had had retraction or hemorrhage in any case from cutting the cord; also whether, after incision of the vessels, they would retract and bleed, and whether he would be able to catch them?

Dr. Wilmer Krusen asked whether the author had seen frightful hemorrhage at times within twelve hours of ligation of the cord?

Dr. Schell, in closing, said he had never had a case of umbilical hernia in babies in which the cord had been tied off in the manner indicated. The hernias he had seen were in children who had been sick with marasmus, pneumonia, or some illness causing them

to cry or strain, which would probably have produced hernia regardless of the method of treating the cord. He does not think he has seen as many hernias with this method as with the older one. He felt that the ring was stronger when clean than when infected. He has nipped the vessels several times, but without encountering any trouble. The bleeding was so slight that a ligature was placed about them merely as a precautionary measure. Answering Dr. Krusen, he had never seen hemorrhage which he would call frightful. He thought there was less danger of hemorrhage with a clean amputation than with an infected slough. The only bad case of hemorrhage observed by him occurred on the eighth day. In this case there was a polypoid-like growth on the end of the stump from which he believed the vessels bled. Although the child recovered, there was later symptoms of general infection. He believed that many obscure illnesses in young infants were the result of an infected stump. Child-bed fever in the mother, he thought, might also be traced to the same source.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held October 3, 1905.

The Vice-President, Dr. J. Arthur Booth, M.D., in the Chair.

Types of Hysterical Insanity.—Dr. Robert C. Woodman read this paper. He said his paper was the outcome of a symptomatic study of the insanities during the past two and a half years. Cases not clearly belonging to any well recognized insane type had been especially scrutinized, and some had been found to show hysterical stigmata, while other atypical cases without stigmata presented mental symptoms very similar to those of the hysterics. His observation and study had shown that there were among the committed insane a considerable number of hysterics, and those cases were, in many instances, violently insane for considerable periods. Any medical classification that ignored that fact was incomplete, and concealed important clinical distinctions. The recognition that some hysterics, as such, were insane, helped to bridge the gap between mental diseases and general medicine, and made more easy the conception of other insanities as thinking disorders; as functional in the same sense, as ordinary thought was functional. Dr. Woodman's paper, in summary, analyzed the symptoms that insane hysterics presented. He found the origin of the attack in emotional experiences; it pursued an episodic course; there was an absence of marked disturbance in the stream of thought, excepting in dazed and stuporous states; there was a natural point of view concerning indifferent topics; often periodic amnesia; a loss of the ability to do mental or physical work, but with little or no motor retardation, and, on the emotional side, usually anxiety and fear. Cases were quoted in which the anxious depression preceded the hysterical stigmata, notably in one involuntional case, and the question of a close relation of hysteria to anxious depressions at any time of life was raised, especially as to its relationship to recurrent melancholic attacks without manic alternations. Some non-conclusive evidence on the relation of hysteria and dementia praecox was submitted, and some other symptom complexes which hysteria had been found to take were referred to.

Dr. Adolf Meyer said that so far as he knew, Dr. Woodman's paper was the most documented presentation of this subject in the English language.

The hysterical insanities were a rather interesting group from a theoretical point of view, inasmuch as they presented one of the clearest types of mental disorder in which the psychogenic element was uppermost. Their recognition was also of decided importance from a prognostic and therapeutic point of view. Quite a large number of the cases—indeed, the majority of the attacks which rank plainly as insanities, were, however, of a rather transitory character, and for that reason, perhaps, the need of a detailed knowledge of the disorders for their treatment had thus far aroused comparatively little interest. That phase of the subject must of necessity be preceded by a study, in broad lines, of the symptom-complex, such as Dr. Woodman's paper had given in his very interesting group of cases. While in some of these cases there was a distinct history of hysteria, with the hysterical stigmata well marked, and the whole mechanism of the disease characteristically hysterical, there were others in which the symptom-complex seemed to coexist with well-recognized forms of insanity, such as dementia praecox and the manic-depressive type, as well as involuntional melancholia, and his suggestion concerning the latter is certainly worth attention, but under those conditions it was usually apparent that it was subordinate to the more decisive phenomena of the major affection. Some points which had of late been especially touched upon in the literature of hysteria, namely, the Ganser complex, had not been especially considered by Dr. Woodman, and perhaps with some justification, as it might well be regarded as an established fact of clinical investigation, when it goes beyond the scope of the analogous states actually described. Probably the best presentation of these cases was that found in the report of Ricklin, published in the *Psychiatrische Wochenschrift* and reviewed in the *Psychological Bulletin*, of July, 1905.

Dr. Arthur C. Brush said that if we accepted the old idea that hysteria was a mental phenomenon that was to a greater or lesser extent met with in the entire human race, it would be difficult to see how Dr. Woodman could differentiate between these so-called hysterical insanities and the true insanities. That the former were nothing but exaggerations of what was normally present in the human being was undoubtedly true, for even sane people had at times hallucinations and delusions and automatic dream states. The sudden onset of the symptoms in these cases of so-called hysterical insanity, and the sudden recovery from them, would sharply distinguish them from cases of true insanity, as would also the lack of mental deterioration. Dr. Brush said he did not wish to be understood from this as questioning the propriety of proper restraint in dealing with cases of so-called hysterical insanity, but until we could clearly define insanity and hysteria, he did not think we could accept the latter as a form of insanity.

Dr. William M. Leszynsky said that Dr. Woodman, in his paper, had mentioned slight contraction of the visual field as being one of the symptoms in the cases cited, and he asked how the visual field had been tested; whether by the perimeter or by less accurate methods? As a rule it was exceedingly difficult or impossible in the majority of the insane to make a satisfactory or accurate determination of the visual field, for this required, on the part of the patient, persistent concentration of attention, and considerable judgment. It was possible, however, in some cases to decide as to hemianopsia or marked concentric contraction.

Dr. George W. Jacoby said he considered the contribution of Dr. Woodman of great value, as it was an effort toward systematizing these cases of hysterical insanity so that they could be recognized from their clinical aspects. At the same time, he was rather surprised to learn that this class of cases was considered in any way unusual, and he could only explain this on the ground that they were regarded from a different standpoint by the psychiatrist and alienist in contradistinction to that of the neurologist. The latter regarded many of the somatic features of hysteria as distinct delusions, and if that interpretation was correct, then it was only one step further to the development of distinct insanity. In the recognition of these cases of so-called hysterical insanity it would be necessary to study the previous history of the patient, and exclude the various other forms of insanity, such as epileptiform insanity, delirium of various kinds, catatonia, etc. Given, a case in which there was a previous history of hysteria, together with the course and clinical features pointed out by Dr. Woodman, and the diagnosis of hysterical insanity could in time be made, but whether a diagnosis could be made from the course alone, without such a previous history of hysteria, was questionable. The value of such an early diagnosis lay chiefly in the prognosis and treatment, but the speaker said it would be a decided mistake to believe that all cases of hysterical insanity were of short duration. He recalled instances where recovery was delayed for two or three years. Dr. Jacoby said he agreed with Dr. Leszynsky that it would be exceedingly difficult to base the diagnosis of hysteria upon somatic symptoms, such as restriction of the visual field, hemianesthesia, etc., because patients of that class were usually very unreliable in their statements, and susceptible to suggestions of all kinds.

Dr. Edward D. Fisher said he certainly would draw a distinction between cases of mental disease occurring in those who gave a previous history of hysteria and in those who gave no such history. The former, as a rule, did not run the typical course observed in melancholia or in so-called mania, using the older terms, but they might assume more of the paranoid form. The duration of these hysterical insanities, as Dr. Jacoby had said, was often quite prolonged. He recalled cases of this kind where restraint became necessary on account of the development of suicidal or homicidal tendencies, and where some mental instability persisted for some time after the disappearance of the acute symptoms. Dr. Fisher thought the profession was justified in classifying certain forms of insanity as hysterical, as this term clearly explained the nature of the case. While the term was perhaps not purely scientific, it was a true representation of a certain mental state occurring only in those who had the stigmata of hysteria. He was inclined to regard the term hysterical insanity as a more or less valuable one, as really representing an entity, if not a well defined one.

Dr. William B. Noyes said that within the last six months he had seen two cases where the diagnosis between hysterical insanity and dementia præcox or some other psychosis had been a matter of careful consideration. One of these was a woman, aged thirty, who had sustained a fall and had been treated in a hospital for contusion of the back. Two months later she suffered from attacks of unconsciousness, coma and convulsions, four or five times, lasting in all about five days. There was no lesion of the kid-

neys. She was again treated in the hospital and had occasional auditory hallucinations. When he examined her she had tremors, increased knee-jerks and isolated areas of absolute analgesia and anesthesia. She showed great weakness in walking. The diagnosis of traumatic hysteria seemed plausible. During the following days she became excited and at times almost maniacal, at other times much depressed. At a subsequent examination she had no anesthesia but an area of hyperesthesia in the middle of the back. Mentally she was silly, but neither depressed nor excited. A day or two later she was sent to an insane asylum, having again become excited. Notwithstanding the fact that the subsequent history of the case may indicate a condition of dementia or some other definite psychosis, the name of hysterical insanity covers all the clinical data at present obtainable. The other case was that of a young married woman, aged twenty-five years. She resided with her husband's relatives, who were exceedingly neurotic. She had nursed a case of typhoid fever just before her marriage. Before the present illness she had suffered from three mild attacks of hysteria, with cramp-like symptoms, and much prostration, but no special mental disorder. When Dr. Noyes saw her, last spring, she had a typical attack of hysteria major, starting with convulsions and coma. There were no evidences of uremia. The convulsions were followed by a dream-like condition and semi-coma, failure to recognize her friends and transitory hallucinations. Her condition gradually improved, and she was well in three weeks. There were no areas of anesthesia in the brief examination the speaker was able to make, nor any well defined hysterical stigmata, excepting the peculiar conformation of her face. In her case the mental symptoms were so severe for about three weeks that no one could have distinguished between hysteria and developing dementia præcox. The fact of several years of mild or grave hysteria was positive; the transitory nature of the mental disturbance was against dementia præcox.

Dr. J. Arthur Booth, after referring to the several interesting types of so-called hysterical insanity illustrated in Dr. Woodman's paper, said that the type in which there were convulsive seizures and hemianesthesia, with narrowing of the visual field and marked emotional disturbances, was not difficult to recognize. In some of the other types referred to, however, the diagnosis of hysterical insanity should be made with great circumspection; for, just as in many organic diseases of the nervous system hysterical disturbances were not infrequently observed, so in certain psychoses, other than the one under consideration, emotional disturbances occur which would not justify one in grouping these cases as types of hysterical insanity.

Dr. Woodman, in closing, said he thought Dr. Jacoby had touched upon an exceedingly important point in the ultimate relationship of these cases in calling attention to the fact that the neurologist regarded many of the somatic features of hysteria as distinct delusions. The speaker believed that in hysteria both the physical symptoms and such mental disturbances as were regarded as insane left a common basis in a characteristic thought disorder. He also agreed with what had been said regarding the long duration of some of these cases. He recalled one case where the symptoms persisted for three years before recovery took place, and there was another case in the hospital that had been there about

three years. In other cases, however, the recovery had been very prompt. In reply to Dr. Leszynsky, the speaker said that by slight contractions of the visual field he meant practically that the sight was limited to an area within 60 degrees. Some of these patients were examined by rough tests, and others with the perimeter, which it was possible to employ in some instances. In others only rough tests could be made.

Dr. Woodman said he did not wish to be understood as presenting the provisional classification of the cases he had reported in his paper as a classification of hysterical insanity. He simply used these headings as guide posts to give some idea of where, among the many groups of insanities, we might look for the hysterical type.

On Flight of Ideas.—Dr. August Hoch, of Bloomington, read this paper. After a review of various theories regarding this symptom it was pointed out that it is impossible to explain either the normal train of thought or that of flight of ideas otherwise than by the recognition of a force by which the train of thought is directed; a force which is active in the normal train of thought, but diminished or absent in the flight of ideas. This force we call with Liepmann "attention," recognizing that this is a somewhat restricted use of this term. In this sense, then, flight of ideas is an attention disorder. Such a conception alone takes account of the symptom fully. Because a study of the cases shows us that the peculiarity of the train of thought, namely, its being constantly deflected into the sidetracks is not the only manifestation of the attention disorder, but that the latter has two components, viz., an emissive and a receptive one. The emissive component, that which is usually termed flight of ideas, is best characterized by the statement that the train of thought follows the path of least resistance. It is not enough to say that it merely follows the laws of association, because emotional factors influence it strongly. The modifications which this emissive component may present may be produced, in addition to emotional factors, first, by the intellectual development of the patient, since with some persons logical trains of thought are more habitual than with others, and consequently some may represent a path of least resistance. Here may also be mentioned the observation that patients with pronounced flight of ideas may become much more coherent when they talk about subjects which are supplied to them or about subjects or incidents which made a special impression on them; secondly, by that which Krapelin has called thinking disorder, and which may be associated with the attention disorder. The modification through emotional influences is best shown in the cases in which the flight of ideas is held together, as it were, by a depressive emotion or by anger. The receptive component shows itself in the inability on the part of the patient to quietly combine simultaneous or successive data of observation into a conclusion, so far as this is an effort. Conclusions in regard to facts and situations which present themselves to such patients are not drawn from all the data, which are then balanced with former experiences, but merely from a few, while at the same time the subjective factor predominates; or, in other words, the conclusions follow the path of least resistance. As a result, the identity of persons is often mistaken, the grasp on the surroundings is faulty, and delusions are formed. The latter may be very stable, and indeed may dominate the clinical

picture. The receptive component may also be recognized by tests (reading tests). The patients are made to read paragraphs of graded complexity and asked to give the gist. The recognition of this receptive component, which has never been sufficiently emphasized, explains, therefore, various secondary symptoms associated with more marked degrees of flight of ideas. And when, through certain modifications, the emissive component of the attention disorder is obscured, the analysis of the receptive component may be of great diagnostic value. This sort of attention disorder is a common symptom in various psychoses. Deliria and senile dementia were mentioned as examples. In both of these conditions we may find trains of thought identical with flight, though less marked, and submerged, as it were, by the specific symptoms belonging to these states; namely in the deliria, the constant tendency towards lower levels of consciousness; in senile dementia the diminished mental responsiveness, with its sequels. It may be added that both these conditions have been called attention disorders. But they are different from the attention disorder described here and only give rise to it as an incidental manifestation. In its pure form, however, we find it in manic-depressive insanity, where it presents itself as an essentially dynamic disorder. Some of the points were illustrated by clinical descriptions.

Dr. Charles L. Dana, said that Dr. Hoch's paper was a very clear and important contribution to this subject. He thought perhaps the author had laid too much stress upon the term "flight of ideas," as though that term represented some particular and definite psychical phenomenon which it was the duty of psychologists to analyze. Flight of ideas was, however, a characteristic syndrome, and the speaker's demonstration that it was essentially an attention disorder was very convincing.

Dr. Adolf Meyer said the recognition of the meaning of the flight of ideas as attention disorders was of great importance in the understanding of certain mental conditions. Without a realization of their nature the diagnosis of such cases as the ones reported would be attended with considerable difficulty, especially in those instances where the existence and persistence of delusions might suggest otherwise a condition of grave character. That Aschaffenburg's explanation did not cover the ground was certain, yet it would seem that the motor factor in the production of alliterations need not be ruled out, as it no doubt helped to explain part of the effect of the attention disorders as the practically much more important side insisted upon by Dr. Hoch, explained other results.

Dr. Fisher said that all thought required attention, and with disordered attention there was this rapid succession of ideas or flight of ideas to which Dr. Hoch had referred. The association of ideas made the succession rapid or slow, as the case might be. Certain ideas will call up others, depending on the knowledge or experience of the person along certain lines, and the flight of ideas is apt to be more rapid without the control of the will. When there is a lack of attention there is a lack of will power and a rapid ebullition of ideas. On the receptive side this is more or less the same. The person might receive a hundred impressions, and his attention not being fixed, he might not be able to put them in their proper relation or properly associate them because they did not remain long enough in his consciousness. Without full consciousness there was never a

In 1944, the Oklahoma State Board of Health
 reported that the average number of cases per
 county was 1.5. The highest number of cases was
 reported in the Oklahoma County, with 10 cases.
 The lowest number of cases was reported in the
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Dr. Woodman said he had hitherto been inclined to underestimate the importance of the receptive side of the flight of ideas. He mentioned a case of long-standing manic depressive insanity where the patient was able to talk well and coherently, but failed in the reading test. He was unable to explain a simple paragraph without interjecting his own ideas to the exclusion of those of the writer.

A PRACTICAL TREATISE ON SEXUAL DISORDERS OF THE MALE AND FEMALE. By ROBERT W. TAYLOR, A.M., M.D., formerly Clinical Professor of Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; Consulting Genito-Urinary Surgeon to Bellevue and to the City (Charity) Hospital, New York. Third Edition, thoroughly revised. Lea Brothers & Company, New York and Philadelphia.

clined in the fist and pound on the chest twelve powerful strokes." The different alphabetical order are next considered as to their peptics, and finally the individual drugs are taken to their application in medicine. We should the homeopathic student would be very glad to have such a book.

PRINCIPLES OF HEREDITY. By Dr. G. A. REEVE.
359 pages. E. P. Dutton, New York.

TEXT BOOK OF PHYSIOLOGICAL CHEMISTRY.
John H. Long. 8vo, 424 pages. Illustrated.
Lippincott's Son & Co., Philadelphia.

HUMAN PHYSIOLOGY. By Dr. J. H. RAUPE.
 2d edition. 8vo, 687 pages. Illustrated. W. B. SAUNDERS
 & Co., Philadelphia and London.

SYSTEM OF PHYSIOLOGIC THERAPEUTICS. By
Cohen. Volume X. 8vo, 479 pages. 1905.
Blakiston's Son & Co., Philadelphia.

PRACTICE OF MEDICINE. By Dr. Wm. Osler. 1143 pages. Illustrated. Sixth edition. D. Appleton & Company, New York and London.

DIETETICS FOR NURSES. By Drs. J. F. J. Ruhräh. 12mo, 363 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

DISEASES OF THE SKIN. By G. A. H. ...
 edition. 12mo, 676 pages. Illustrated by ...
 & Company, Philadelphia and New York.

THE TREATMENT OF FRACTURES. By Dr. C. L. Scudder. Fifth edition. 8vo, 563 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

'EXERCISES IN PRACTICAL PHYSIOLOGY. By Dr. Augustus D. Waller. Part II. 8vo, 79 pages. Illustrated. Longmans, Green & Co., London, New York and Bombay.

THERAPEUTICS AND PRINCIPLES OF PRACTICE. By Dr.
 H. C. Wood. Twelfth edition. 8vo, 907 pages. Illus-
 trated. J. B. Lippincott Company, Philadelphia and
 New York.

ORGANIC MATERIA MEDICA AND PHARMACOGNOSY. By Drs. L. E. Sayre and W. C. Stevens. Third edition. 8vo, 692 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

DISEASES OF THE ANUS AND RECTUM. By Drs. D. H. Goodsall and W. Ernest Miles. 8vo, 271 pages. Illustrated. Longmans, Green & Co., London, New York and Bombay.

KIDNEY AND SPLEEN AND HEMORRHAGIC DIATHESIS.
By Drs. H. Senator and M. Litten. Edited by Dr.
James B. Herrick. 8vo, 815 pages. Illustrated. W.
B. Saunders & Co., Philadelphia and London.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, DECEMBER 9, 1905.

NO. 24.

ORIGINAL ARTICLES.

THE ETIOLOGY OF SYPHILIS.¹

BY SIMON FLEXNER, M.D.,
OF NEW YORK.

I AM very sensible of the great honor which you have conferred upon me in extending to me the invitation to deliver this lecture. I consider myself highly favored by it, and I regard myself also as fortunate in being able to present to you a subject of such great intrinsic interest as syphilis, and one which the experimental studies of the past several years have done so much to clear up. The history of the investigations into the cause of the infectious diseases has taught us anew that discovery in science is not an accidental occurrence; it has, indeed, emphasized the fact already established for the physical sciences, that progress proceeds along definite roads, although these roads are rarely straight and direct. There is, however, an orderly procession in discovery—the work of one era preparing the way for that of the next—although the existence of this order is not always at once apparent. The topic which is to occupy us for the next hour is a fruitful illustration of the manner in which medical discovery has come about; how by successive and careful observation a knowledge at once deep and convincing has grown up, although this knowledge has for a time rested upon data imperfectly founded.

We cannot, it is true, definitely maintain that the etiology of syphilis has been certainly and wholly resolved. And yet we are permitted to indulge the hope that this great event has possibly been achieved. We have, in any case, as a permanent addition to the knowledge of syphilis, many important facts which come to us on established grounds, and which cannot be affected by any fate overtaking the recent discovery of a spiral organism in syphilitic products.

The successful inoculation of monkeys and apes with syphilitic virus has revived interest in the question of transmission of syphilis to the lower animals. Were it merely a matter of susceptibility to infection in these animals the question would have a theoretical interest only. But when it is considered that there are many problems of syphilitic infection which have failed of solution because observation was limited wholly to man, and when it is further recalled that the experimental study of other diseases has given the keys to unlock what formerly appeared as insuperable difficulties, we are permitted to believe that the study of the difficult and tangled subject of syphilis in man may also be aided through this means.

We owe to Metschnikoff and Roux¹ the demonstration that apes are subject to inoculation with syphilitic virus. The earlier literature, as you all are aware, contains references to the possibility of communicating syphilis to different classes of vertebrates. While in most instances the attempts were regarded as failures, there are several experiments recorded for which success has been claimed. Auzias-Turenne² believed in 1866 that he had produced syphilis in the cat; and the next year Legros and Lanceraux³ described specific lesions in the guinea-pig. Swine were thought especially subject to inoculation, and at one period they were used for numerous experiments. Martineau⁴, Adrian⁵, Hügel and Holzhauer⁶ all recorded successful results; but all these mistaken observations were set aside by Neisser's⁷ conclusive experiments.

The case is, however, quite different in respect to the inoculation of monkeys, which were chosen because of their closer zoological relationship to man. Klebs⁸, in 1879, was the first, I think, to employ these animals. He used a fragment of a primary lesion in man for inoculation; but this experiment is, unfortunately, unconvincing for the reason that the species of monkey is not stated, and secondary, papular lesions are described as having appeared on several parts of the body six weeks after inoculation. A second successful result is reported by Martineau and Hamonic⁹, who, in 1882, inoculated a macac monkey. They say that four weeks later the animal developed primary syphilitic lesions at the place of inoculation, and these were followed by adenites and ulcerations of the mouth. There would be nothing essentially impossible in these experiments were it not that later studies have shown conclusively that the lower monkeys are not subject to the secondary stages of the disease, or, at least, that there is no similarity between the secondary phenomena as observed in man and the remote ones seen in these animals. Moreover, the studies which immediately succeed those of Klebs and Martineau were uniformly negative in result, and tended, therefore, still further to discredit the supposed successful experiments. There can, I think, be no doubt that Sperk¹⁰ in 1886 and 1888 proved the occasional transmissibility of human syphilis to the macac species of monkey. Of 46 monkeys which he

¹ *Annales de l'Institut Pasteur*, 1903, XVII, 809.

² *La Syphilisation*, 1878, p. 422. Cited by Metschnikoff and Roux.

³ Cited by Roux and Metschnikoff.

⁴ *Ibid.*

⁵ *Archiv f. Dermatologie u. Syphilis*, 1899, XLVII, 163.

⁶ *Ibid.*, 1900, LI, 225.

⁷ *Ibid.*, 1902, LIX, 163.

⁸ *Archiv für experimentelle Pathologie*, 1879, X, 161.

⁹ *Bulletin de l'Academ. de méd.*, 1882, XI, 1007.

¹⁰ *Œuvres complètes*, t. II, Paris, 1896, pp. 614-616. Cited by Metschnikoff and Roux.

¹ The Wesley M. Carpenter Lecture, delivered before the New York Academy of Medicine, October 19, 1905.

inoculated, three only gave positive results. These last belonged to the macac species and were all infected with the same material. The first developed a chancre-like lesion, the beginning of which was noted twenty-four days after inoculation; from the first a second, and from the second a third animal of the same species were infected. In each instance there was a long period of inoculation, and the healing process was slow. In the second animal three months, and in the third 52 days elapsed between the appearance and cicatrization of the lesions. These experiments, therefore, may be taken as proving not only the susceptibility of certain monkeys to the local lesions of syphilis, but also the possibility of successive transmission of the virus from animal to animal.

Interesting and important as these results are, they are too irregular and imperfect to serve as an experimental basis for the study of the pathology of syphilis. Since in far the greater number of tests the effects were nil, the positive results partake of the nature of accidents, with which scientific medicine cannot deal adequately. This is perhaps the reason why the subject remained so long in abeyance until interest in it was revived by Metschnikoff and Roux's¹¹ announcement in 1903 that the higher or anthropoid apes were subjects to syphilitic inoculation, the disease manifesting itself in the form of primary lesions, which, after an interval of time, are followed by adenitis and an eruption of syphilitic papules. In their publication they draw attention to an unpublished result of Maurice and Charles Nicolle, who also succeeded in causing in the lower monkeys local syphilitic lesions of a papular and ulcerative character.

Just as the earlier experimenters were led to employ the monkey because of its relationship with man, so were Roux and Metschnikoff led to their choice by considerations of closer zoological approximation.¹² The choice of the chimpanzee was peculiarly fortunate. This species has proven to be readily subject to inoculation with the virus of syphilis, to which it reacts in a constant and characteristic manner. Hence the chimpanzee is adapted for those refined experiments which have already extended, and, doubtless, will still further extend our knowledge of the nature and mode of action of the syphilitic poison.

Since this subject is of such great theoretical and practical interest, it may be permissible to describe briefly one or two successful experiments. The first ape inoculated was a female chimpanzee about two years old. The source of the virus was (1) serous fluid from a chancre in man, and the site of inoculation the prepuce of the clitoris; and (2) material from a mucous plaque, and the site of inoculation the border of the eye-brow. Five days after the first inoculation a second one was made with virus from a chancre. The original scarifications quickly

healed, after which no visible lesions appeared until the twenty-sixth day following the first inoculations. A small vesicle, which later increased in size and took on indurative characters, was noted on the prepuce at this time. The fully developed lesion was examined by Fournier, du Castel, Holloveau and Marc Sée, who pronounced it a hard chancre. It had been noted at the time of inoculation that the lymphatic glands of the groin and elsewhere were not readily palpable; with the appearance of the local lesion the lymphatic glands of the groin could be easily felt, and some days later they had increased in volume, those on the side of the ulcer being the larger.

Just one month later, that is fifty-six days after the first inoculation, papules were noted upon the thighs, abdomen and back. They numbered fifteen, were round and of the diameter of a five-cent piece. The peripheral zone was at first red, and later became pigmented; the mid zone was paler; the center came to be covered with a scaly crust. On scratching, serum was exuded. The papules endured for a month and then began to heal; but they were still visible some weeks later, at the time of the death of the animal, which was caused by the pneumococcus, to which micro-organism the chimpanzee in confinement is peculiarly susceptible.

This result points a new direction in which to pursue the experimental study of human infectious disease. In many instances there is only a rough analogy between the natural disease in man and the counterfeit produced in the lower animals. That our knowledge of infectious diseases, perhaps even of other diseases not now open to experimental study, might possibly be greatly extended by the use of animals which are more closely related to man than the usual laboratory ones, can hardly be questioned. The difficulties in the way of accomplishing such an undertaking on a large scale are immense and not readily to be overcome. We detect, however, a still further justification for their use in the successful experiment of Greenbaum,¹³ who would seem to have removed the last traces of doubt which surround the typhoid bacillus, by successfully causing in a chimpanzee typhoid fever by feeding cultures of the bacillus. And Charles Nicolle¹⁴ has just announced from the Pasteur Institute at Tunis the production of lepromata in two specimens of *Macacus simuensis* by inoculating leprosy tissue into the skin.

Metschnikoff and Roux immediately showed that the syphilitic poison was transmissible from ape to ape without undergoing alteration of quality as measured by the effects produced. Forty-five days after the appearance of the primary lesion in the first animal a second was inoculated from the first—both from the primary and the secondary papular syphilides. Lesions regarded by Fournier as syphilitic developed

¹² Cited by Metschnikoff.

¹³ Comp. rend. des Séances de l'Acad. des Sciences, 1905, CXL, 539.

¹⁴ Annales de l'Institut Pasteur, 1903, XVII, 1809.

from both inoculations, and they were followed by adenitis. In a later report they describe still another important experiment in the chimpanzee. Eighteen days after the appearance of a primary lesion, which was located on the eye-brow, small persistent erosions appeared on the tongue, and three weeks later still other lesions appeared there and on the lower lip. These erosions were regarded as mucous plaques. At about the same time this animal developed a paraplegia lasting more than a month, which, it is suggested, was of syphilitic origin.

Lassar's¹⁴ experiments, while confirming the foregoing, extend them very little. He observed the regular development of the primary lesions, the delay in appearance of the secondary manifestations, and the transmissibility of the virus from animal to animal. He describes secondary, luetic papules on the hands and feet and about the anus, and he describes in a brief way a histological study of the experimental syphilides by Becker and Mayer,^{14a} which bring them into agreement with the corresponding lesions in man, a conclusion to which they arrived and one which was confirmed by Arnal and Salmon,^{14b} who studied Metschnikoff's specimens. Certain experiments which I performed upon monkeys, to which I will refer later, enabled me to make out the essential identity of the experimental and the naturally acquired primary lesions.

The studies made by Neisser¹⁵ confirm and extend those just mentioned. Neisser would seem to have discovered an interesting gradation of susceptibility to syphilitic infection in the ape, depending upon the exact position held by different species in the zoological series. His conclusions are that the lower monkeys react with local syphilides, the highest monkeys, namely, the chimpanzee, gorilla and orang-utan, all react with primary and secondary lesions, while the gibbon, which occupies an intermediate position, develops less characteristic primary lesions and fails to show the typical secondary ones.

There is at least one important way in which the results of Neisser's experiments differ from those of Metschnikoff and Roux. The latter experimenters believe that they had modified and attenuated the virus by its passage through the lower monkeys so as to produce a vaccine which, when used to infect the chimpanzee, provoked a local process, and left this animal protected from the virulent human virus. Neisser, on the contrary, has inoculated successfully not only from monkey to monkey, producing the local lesions, but from monkey to anthropoid, with the production both of the local primary and the systemic secondary infection. Hence he concluded that Metschnikoff's failure was due not to protection, but to syphilization of the chimpanzee.

Doubtless the higher apes will come in time to

resolve many disputed points in human syphilis, and to supply facts where we now have opinion and conjecture. The use of these animals has already answered partially certain questions relating to the manner of entrance of the virus into the body and the comparative virulence of different products of the syphilized animal; and it may also help to explain better than we now know it the important questions of re-infection in syphilis. Cutaneous inoculations with primary syphilides and primary lymphatic glands cause lesions; subcutaneous injections of chancres and condylomata produce no specific manifestations; insertion of infected lymph glands directly in the peritoneal cavity is without effect. Defibrinated blood and blood serum from cases of recent syphilis in man are innocuous when injected subcutaneously and intraperitoneally. Blood serum from syphilitics is also without protective action against subsequent inoculation with active virus. The internal organs—spleen, liver, bone-marrow—of the recently infected monkey and ape possess neither infective nor protective properties of high degree. Perhaps they are wholly innocuous. These are some of Neisser's results, which, if not conclusive, have yet a bearing upon the relative infectiousness of the blood and internal organs of syphilitics, and bear on the questions of the avenue through which the virus seeks to enter the body, and its capacity to enter directly into the interior of the body and cause the secondary lesions of the disease, without first having undergone incubation or other changes at some local superficial site.

That the virus of syphilis when separated from the body is labile is shown by the relative infrequency of accidental infections from contaminated objects. We have no data with regard to the influence upon the virus of simple drying and exposure to the air; but these are now easily within reach. It has been ascertained by Metschnikoff and Roux¹⁶ that the poison is easily injured or destroyed by low degrees of heat. Particles of chancres and condylomata suspended in salt solution, or in aqueous tumor, are rendered inactive upon the monkey and chimpanzee after heating for one hour at 51° C. and half-hour at 60° C. Glycerine,¹⁷ on the other hand, does not deprive the virus of its power to set up specific lesions in apes, at least not when the inoculation is made soon after mixing.

The foregoing studies have been valuable in establishing many points regarding the pathology of syphilis, but they have thrown no light upon the nature of the micro-organism which it is hardly presumption to speak of as its immediate cause. That this micro-organism is not so peculiarly specialized as to thrive on human tissue alone is now proven, and the fact of the blood relationship of the whole group of primates receives through these studies an additional and unexpected confirmation.

¹⁴ Berliner klin. Wochenschrift, 1903, XL, 1189.

^{14a} Included in Lassar's paper.

^{14b} Annales de l'Institut Pasteur, 1904, XXIII, 465.

¹⁵ Deutsche med. Wochenschrift, 1904, XXX, 1369, 1431, and with Baermann, idem., 1905, XXXI, 748.

¹⁶ Annales de l'Institut Pasteur, 1904, XVIII, 657.

¹⁷ Metschnikoff and Roux, idem.

No one doubts that the cause of syphilis is a living germ, but its elusiveness up to the present time has given rise to speculations upon its probable size. Now that we have learned that a class of micro-organisms exists which defy the highest powers of the microscope and that among this class are several species causing fatal infections in the lower animals it is pertinent to inquire whether the micro-organisms of syphilis also belong here. This question has been answered indirectly by filtration experiments carried out by Metschnikoff and Roux.¹⁸ They proved that an unglazed filter, which will permit the passage of the microbe of pleuro-pneumonia of cattle, holds back the virus of syphilis; and even before this conclusive test was made Klingmüller and Baermann¹⁹ had inoculated themselves unsuccessfully with filtrates obtained by the use of Berkefeld filters, from active syphilitic lesions. In other words, the evidence all points to the microbe of syphilis being microscopic, not ultramicroscopic.

There has been, as you well know, no dearth of supposed discovery of the microbic cause of syphilis. It would not be profitable to make an historical and critical survey of the general literature of the subject, for all the earlier observations down to the publication of Siegel and Schaudinn and Hoffmann have either been discredited or stand upon a foundation so weak as scarcely to call for painstaking attempts at confirmation. The very far-reaching results of Siegel's²⁰ studies, embracing, as they do, besides syphilis, smallpox, scarlet fever and foot and mouth disease, have not yet received the attention which they possibly deserve by reason of the faith which F. E. Schultze²¹ has expressed in them. It is, however, interesting to learn that the discovery of *Spirochæta pallida* is the direct outcome of an attempt on the part of Schaudinn and Hoffmann to confirm Siegel's observations on the so-called protozoon, *Cytorrhycles luis*, which he described as existing in the blood and tissues of syphilitic patients, and in rabbits inoculated with the blood and other products obtained from them.

In view of the late developments on this subject it will not be uninteresting to quote from the last paper of Metschnikoff and Roux²² and to give their views upon the nature of the syphilis microbe. Their words show that they looked for the very form of organism that was afterwards found. They say: "The microscopical researches which we have made have not yielded us satisfactory results. A minute examination of the serous fluid obtained from initial vesicles revealed the presence of leucocytes and red blood

corpuscles, but no microbes. The minute granules in the fluid—cell fragments, doubtless—do not execute any movements attributable to shock from a motile organism. If the parasite of syphilis were a *spirillum* much smaller than that of Obermeier or the spirillum of birds, one should have been able to detect its presence by the movements imparted to the corpuscles suspended in the serous fluid. The absence of this movement makes us suppose rather that the organism is immobile. Moreover, the addition of neutral red to the serum, which, in the case of the spirillum of birds, makes it at once apparent, accomplishes nothing in the study of the microbe of syphilis."

It is more than noteworthy that within six months of the appearance of this utterance a spiral organism should have been discovered in syphilis, and before the lapse of another half-year been established as not impossibly the cause of the disease. There is, however, more or less of justification to be found for the view expressed by Metschnikoff and Roux for the spirochæta of Schaudinn and Hoffmann²³ is not actively mobile, and its extreme tenuity and refractoriness to staining agents renders it difficult to see, both in the stained and unstained conditions.

In order that one may fix accurately the historical position of the spiral organism of Schaudinn and at the same time be informed of the degree of prescience contained in Metschnikoff and Roux's conjecture, it may be stated that as early as 1903 Bordet and Gengou²⁴ observed very fine spiral organisms in the interior of a chancre and in a mucous patch. Doubtless these spirals were identical with the so-called *Spirochæta pallida*; but as subsequent examinations did not yield these investigators the same parasite they ceased to regard it as important. That this observation was familiar to the staff of the Pasteur Institute is certain, and the recent history of the spiral organism occurring in syphilis also suffices to explain Bordet's failure to demonstrate it constantly in the lesions.

The flood of confirmatory publications upon the discovery of Schaudinn and Hoffmann has created a feeling of faith in the spirochæte which its discoverers have never publicly expressed.^{24a} It will be our task at this time to pass in review the evidence upon which this faith is based in order that we, too, may appreciate the force and the direction of the currents.

Spirochæta pallida is described by its discoverers as measuring from 4 to 10 microns, the

¹⁸ Ibid. See also Siebert (Deutsche med. Wochenschrift, 1905, p. 1642).

¹⁹ Deutsche med. Wochenschrift, 1904, XXX, 766.

²⁰ Untersuch. über die Aetiologie des Syphilis, Anhang zu den Abhandlungen der königl. preuss. Akademie der Wissenschaften vom Jahre 1905; Untersuch. über die Aetiologie der Pocken und der Maul- und Klauenseuche, idem.; Untersuchungen über die Aetiologie des Scharlachs, idem. Also in Münch. med. Wochenschrift, 1905, LII, 1323, 1384, 1574; Medizin. Klinik, 1905, I, 446. See also Freund, Münch. med. Wochenschrift, 1905, LII, 1819.

²¹ Berlin. klin. Wochenschrift, 1905, XLII, 653.

²² Annales de l'Institut Pasteur, 1904, XVIII, 661.

²³ Vorläufige Berichte über das Vorkommen von Spirochæten in syphilitischen Krankheitsproducten und Papillomen. Arbeiten a. d. kais. Gesundheitsamte, 1905, XXII, 526; Deutsche med. Wochenschrift, 1905, XXXI, 711; Berliner klin. Wochenschrift, 1905, XLII, 673. Also, Hoffmann, Berliner klin. Wochenschrift, 1905, XLII, 726 and 1022; Schaudinn, idem., p. 733.

²⁴ Metschnikoff and Roux, Bull. de l'Académie de Méd., 1905, LIII, 468; and Bordet, Soc. roy. des Sciences Méd. et Nat. de Bruxelles, 1905, LXIII, 124.

^{24a} In papers which appeared after the reading of this address Hoffmann (Deutsche med. Wochenschrift, 1905, p. 1455) and Schaudinn (idem., p. 1665) state it as their conviction that the pallida is the definitive cause of syphilis. Metschnikoff (Bull. de l'Institut Pasteur, 1905, III, 544) expresses confidence in the discovery, and views syphilis as a chronic spirillar infection.

average length being 7 microns, or about that of a red corpuscle of man. In width it varies from unmeasurable thinness to $\frac{1}{2}$ micron. It possesses from 3 to 12, sometimes more, curves, which are sharp and regular and resemble the curves of a corkscrew. The poles are sharpened. The organism is mobile and the motions consist of rotations on the long axis, forward and backward movements, and bending of the entire body. Flagella have not been seen.^{24b}

The character of the curves and the tenuous forms give a striking appearance to the organism, and make its identification relatively easy. As it is frequently the only spiral organism present in the preparation, there is, as a rule, no difficulty surrounding its identification. But its detection is not entirely easy, since with most stains recommended for its demonstration it is tinged so lightly that some practice is required in order to see it. Its admixture on the ulcerating surfaces of syphilides with other spiral organisms, not limited to specific lesions, but occurring in ulcers of various kinds, adds somewhat to the difficulties of its detection. The most trustworthy evidence points to the fact that in the interior of specific lesions this pale spiral organism is rarely attended by the coarser kinds of spirilla or with extraneous bacteria; and, therefore, the fluids obtained from the interior of the syphilides are the most favorable for purposes of examination. Several writers have stated that the pallida may be entirely missed among the saprophytes of the surface of ulcerating lesions under conditions in which it is easily detected in the deeper parts. My own study of ulcerating primary lesions, condylomata and mucous patches, has led me to similar conclusions. There is, I think, no doubt that the pallida occurs on the surface of these lesions, but evidently its growth is more restricted than in the absence of contending saprophytic, pyogenic and putrefactive micro-organisms. The pallida would seem, therefore, not to thrive as well on dead as on living tissue, a consideration which is not insignificant in view of the growing belief in its peculiar pathogenic and highly parasitic properties.

Foreign and distinct spiral organisms occur not infrequently in health about the genitals, and probably in other parts of the surface of the body, and these kinds may therefore become associated in specific lesions with the pallida. The chief foreign spiral organism of this class is a coarser spirillum with fewer curves of wider and less sharp contour. It has been described several times, especially in inflammatory venereal processes, by Berdal and Bataille, Csillag and Rona;²⁵ and Schaudinn and Hoffmann have pro-

^{24b} This statement requires modification since Schaudinn (Deutsche med. Wochenschrift, 1905, p. 1665) demonstrated by means of Loeffler's stain flagella upon the pallida. The coarser and certain finer indeterminate spirochæte, when stained in this manner, gave evidences of undulating membrane, but not of flagella. Herxheimer and Löser (Münch. med. Wochenschrift, 1905, p. 2212) also give figures of the flagellated pallida which they obtained by the use of the ordinary dyes, apparently anticipating Schaudinn's finding.

²⁵ Quoted by Schaudinn and Hoffmann. Arbeiten aus dem kaiserlichen Gesundheitsamte.

posed tentatively for it the name of *Spirochæta refringens*. It appears to be a common and widespread saprophyte.

A few of the more recent writers have described among the paler and more delicate spirals certain forms in which the curves are longer and a part of the rod is straight. These they consider as possible transitions between pallida and refringens. Although my study has not been exhaustive, I may mention that I have not observed such transitions in the syphilitic material which I have studied, and the impression I have gained is that these two types are quite distinct.

There is, however, evidence at hand, to which I will refer more in detail later, that the pallida type may be simulated more or less closely by spiral micro-organisms occurring in other pathological conditions than syphilis. Everyone knows the dangers and difficulties which attend every attempt at classification of these minute organisms upon morphological and staining characters chiefly. But until a method of cultivation is found, and we are without one at present, we must rely as best we can upon superficial character. I am convinced that the morphological characters of the pallida are sufficient to identify it in specimens made from specific lesions; but I should not be surprised were it found that similar morphological forms occur in nature among the saprophytic micro-organisms.

Since it will be an impossible undertaking to review even most briefly the separate papers which have appeared on the *Spirochæta pallida*, I will endeavor to give you the spirit of the studies already published, as I understand it. The lesions which have been studied chiefly are those which appear on the surface of the skin and mucous membranes, but, nevertheless, a small number of observations have been made on the blood and deep organs, while a fairly large number have been carried out with material obtained from the superficial lymphatic glands.

The evidence is conclusive that primary lesions—condylomata, papular, macular and pustular superficial lesions—contain the pallida either constantly or in the majority of cases. The later papers record fewer failures in finding the organism in chancre, condylomata and mucous patches than the earlier ones; and I think there can be no doubt that this greater constancy is to be attributed to increased experience in the observers, and to improved methods of staining the organism. There is something elusive and mysterious in the varying capacity for taking up stains exhibited by the pallida. My first successful preparation was obtained with an ordinary gentian-violet dye; but I failed with this same stain in many subsequent trials. Azur still remains, I think, the most reliable stain, although several of the more rapid methods, in particular that of Proca and Vasilescu, are also useful.

Since the choice of material will affect essentially the result of examination, I may be permitted to say a word upon this subject. If it is

desired to study ulcerative lesions the surface should first be cleansed, after which the raw surface exposed need only be gently rubbed with a platinum loop in order to obtain a few drops of serum. The cover glasses should be spread as thinly as possible, which is the rule for all these examinations. Should ulcerations of the superficial syphilide not have taken place a few drops of fluid—a mixture of blood and lymph—can be withdrawn with a hypodermic syringe. In the case of mucous patches I have preferred to use the double sharp spoon, removing with one the superficial necrotic tissue and saprophytic organisms, and with the other scraping lightly the denuded surface. This operation is quite painless, but there is no disadvantage in previous cocainization of the surface if it is desired. I have compared the two scrapings, always to the advantage of the deeper one, in which, greatly to my surprise, I often found, except for the pale spiral, almost complete absence of micro-organisms. These ulcerated papules of the mucous membrane of the mouth and throat would seem, from my experience and from reported examinations, to contain the spirochæta in good numbers, and hence to be particularly suitable for demonstrating the organism. I have found no difficulty in distinguishing in these preparations from the buccal cavity the pallida, and I have not been disturbed or put in doubt by any appearance of transition to the common spiral organisms of the mouth. For much of the material studied I must thank the kindness and courtesy of the staff of the City Hospital.

Through the kindness of Dr. Pedersen, of the House of Relief, I was able to secure early in my studies several excised chancres and condylomata. These served not only to supply me with favorable specimens for demonstrating the pallida, but they enabled me to compare the findings from the superficial and deeper layers of the same specimens, which I did to the advantage of the latter.

The skin lesions—papules, pustules and roseolous areas—are often rich in the organism. After cleaning the surface a superficial incision with a scalpel or sharp needle is made, and a drop or two of blood and lymph expressed.

The superficiality of the three classes of lesion described make them easily accessible for diagnostic purposes. I assume that should the *Spirochæta pallida* be established as the cause of syphilis, for which I may add I think the evidence still inadequate, its presence will be sought systematically to confirm or prove the diagnosis. I am unable, from my lack of clinical experience, to discuss the question of the probable advantage to the patient in doubtful cases which might accrue from an earlier diagnosis and more prompt treatment. It seems to me not improbable that valuable time may not only be saved in this way, but possibly some of the distressing and disfiguring stigmata of the disease might be avoided.

I was able recently to try the value of this theoretical diagnostic test. The case was that of a respectable woman (Abbott) forty years old, who presented herself because of an eruption on the face which spread to the shoulders and slightly to the abdomen and back. She denied stoutly exposure to infection with syphilis; and as the eruption, although a rosy-macula, was not unmistakably characteristic, she was being observed prior to the institution of treatment. The examination of blood taken from a slightly raised spot on the back gave a fair number of the pale spiral organisms. Of course, no practical significance can at present be attached to this observation.

The spirochætæ have been demonstrated less uniformly in the deeper organs. The locally enlarged lymphatic glands, those of the groin chiefly, which show early involvement in syphilis, were naturally studied immediately. The result of this study has been to furnish a positive answer as regards their presence; but while Hoffmann has succeeded practically constantly in staining the organism in aspirated gland juice, others have been less successful. My own experience taught me that the spirochæte occurs in gland juice; but that long search may be required to discover it. I have always endeavored before staining to obtain aspirated fluid which contained masses of gland cells, since the blood alone is not likely to yield the organisms. By using a needle of good caliber and moving it slightly to and fro in the massaged gland, an operation which, once the skin is punctured, appears to be nearly painless, and using a syringe of 5 to 10 cubic centimeters' capacity, so as to secure strong suction, a few drops of blood-stained gland juice can be obtained. This may, as Hoffmann²⁶ suggests, be ejected into a porcelain dish or capsule, preferably at two or three points, and the small whitish, rather than the reddish drops, chosen for examination, since they will contain the gland tissue in greatest amounts. I think any dilution of this fluid objectionable. Thin spreads on cover glasses of the pure fluid should be made. I was obliged in some instances to dilute this fluid with salt solution in order that it might be used for some attempts at cultivation of the organism. These cover-glasses were not satisfactory.

It is too early to pass upon the value of negative examinations, but one experience which I had at first troubled me and then taught me a great deal.²⁷ It showed me the value—in this instance the invaluableness—of tenacity. A young man of eighteen (Case IV) acquired a venereal infection in January. I saw him in May at the House of Relief. The primary lesion, excised by Dr. Pedersen, showed the pallida. I aspirated an enlarged inguinal gland and studied the specimen in the fresh state and discovered what I took to be several small and one large

²⁶ Berliner klin. Wochenschrift, 1905, XLII, 1022.

²⁷ Flexner and Noguchi, THE MEDICAL NEWS, 1905, LXXXVI, 1145.

faintly motile spiral organism. I could not be certain of my observation as the organisms were very difficult to resolve satisfactorily. I was therefore not greatly surprised to find no spirals in the stained preparations, and I was led to suspect that I had been deceived by the first examination. Later, however, after a more searching study of the stained specimens, I discovered a small number of the pallida.

The finding of the pallida in the regional lymphatic glands is, of course, imperative if the organism is to have any position as the probable cause of syphilis. My experience, which has not been large, has not suggested that the enlarged inguinal lymphatic glands contain an indiscriminate mixture of organisms. I have not found such mixtures in cover-glasses, and they have not developed in cultures made from gland juice. The question now arises as to whether this organism also invades the deeper parts of the body. Can it be found in the spleen, etc., and does it inhabit the circulating blood? Our knowledge upon this topic is still highly defective. Schaudinn found the organism once in aspirated splenic juice from a case of recently acquired syphilis; Hoffmann has obtained it from the aspirated juice of an enlarged submental gland in a case in which a chancre of the lip existed, which is, of course, equivalent to the findings in the glands of the groin. The circulating blood has been studied by several investigators, but with a very small number of successful findings. Reckzet²⁸ was the first to report the pallida in the blood, but the forms which he saw were not typical, and he regarded them as degenerating spirals. Raubitschek²⁹ reports a positive finding in a woman who dated the infection three months before the examination. Perhaps the most convincing results were obtained by Noeggerath and Staehlin³⁰ with centrifugalized blood diluted 1 to 10 with 0.3 per cent acetic acid. They employed 1 cubic centimeter of blood for the test, and report three successful observations. Sobernheim and Tomaszewski³¹ examined several specimens by this method, and failed in all but one.

I have studied the blood from two cases: the Abbott woman and a man in whom a macular rash had only just appeared, the primary infection having exhibited itself six weeks before. The blood in the first instance was taken from the lobe of the ear, and in the second from the median basilic vein. In neither were organisms found in the centrifugalized specimen. It is, perhaps, not necessary to state that precaution must be exercised in selecting a part of the skin which is free from the localized lesions of the disease from which to obtain the general blood. I may be permitted to refer in this place to a recent demon-

stration of the spirochætæ in the skin lesions of varicelliform syphilis by Hoffman.²⁸

A review of the facts which have now been brought to your attention leads to the statement that a particular and apparently peculiar spiral micro-organism has been found with striking constancy in the primary and secondary focal lesions of acquired syphilis, whether the lesions are situated on the surface or imbedded beneath the skin of the body. This review also tends to show that this organism does not exist in large numbers in, and possibly is only an occasional and accidental inhabitant of, the general blood stream in the disease, which fact is in striking conformity with Neisser's experiments on the non-infectivity of the blood of syphilitics for monkeys.^{32a} There is, however, abundant evidence of the distribution of this micro-organism by the general circulation, from which it would appear to be taken out by the blood-vessels of the skin and mucous membranes, and possibly the internal organs.

Whether the spirochætæ remain in the vessels of the skin or whether they quickly pass into the surrounding lymphatics is not known. It seems, however, for the moment permissible to assume that the inflammatory and productive lesions are associated with, perhaps caused by, this localization; although it must for the time being remain unsettled whether the direct causes of the local reaction are vascular emboli or perivascular infections.

This doubt will in all probability remain until by histological methods we are able to stain the organism in the tissues. But I have endeavored to procure a tentative answer to this question in another manner, namely, by producing rapid vesication with ammonia water and studying the serous fluid. Since the vesicles arise in a few minutes and the fluid is free of blood corpuscles, I thought it possible that any spirochætæ which were lying about the vessels in the tissue spaces might be washed into the vesicle. A study of vesicles produced in three subjects of the skin lesions of early syphilis were, however, all negative. On the other hand, it appears from tests made later by Levaditi and Petresco³³ that a more severe vesication is accompanied by the escape of spirochætæ in the vesicular fluid. The vesicant was kept applied by him for eight hours, after which time many organisms were found to have passed out. He found the largest number in vesicles directly over papular syphilides, a smaller number in the skin immediately surrounding the lesions, and none in the distant healthy skin. Since in vesicles many hours old cellular exudation has taken place it may be assumed that the injury to the blood-vessels is greater than occurs with the rapidly acting ammonia; and hence it is possible that the previous vessels permit the es-

²⁸ Cited by Hoffmann, Berliner klin. Wochenschrift, 1905, XLII, 1022.

²⁹ Wiener klin. Wochenschrift, 1905, XVIII, 752.

³⁰ Münch. med. Wochenschrift, 1905, LII, 1481.

³¹ Idem., p. 1857. See also Hoffmann, Deutsche med. Woch., 1905, p. 1710.

³² Berliner klin. Wochenschrift, 1905, XLII, 1022.

^{32a} In a recent communication Hoffmann (Berliner klin. Wochenschrift, 1905, p. 1450) reports a successful inoculation of syphilis in a macacus rhesus, with the circulating blood from a man who acquired the disease six months previously and was untreated. The experimental lesion showed many pallida.

³³ La Presse Médicale, 1905, No. 78, p. 617.

cape with the serum and cells of some of the micro-organisms which they may contain. This method of Levaditi has, however, the advantage of furnishing a fluid rich relatively in spirochætae for diagnostic purposes.

Before the employment of bovine virus was as general as it now is syphilis was occasionally transmitted by vaccination. While this danger has been eliminated by the substitution of bovine for human virus, it would be of interest to determine whether the pallida exists in vaccine pustules in syphilitic subjects, since its detection there would not be without theoretical significance. I have looked for the pallida in vaccination lesions in two syphilitic persons thus far without success. The cases were perhaps not especially favorable, for in one the crust was dry and almost ready to come away, and in the other the vesicle was partly dried and contained thick purulent exudate unfavorable for study. I mean to pursue this investigation farther as soon as a favorable opportunity offers.

The great length of time during which the micro-organism of syphilis must, under some conditions, endure in a living state in the body, constitutes a fact of high importance in the history of the recurrences and the congenital transmission of the disease. Hence the question arises whether there is reason to believe that congenital syphilitic manifestations are associated with the occurrence of the pallida, whether the number and distribution of this organism are such as to explain the lesions and the infectiousness of this disease, and whether the spirochæte exists equally in those cases of congenital syphilis which are the offspring of a parent suffering with florid syphilis, and of another in whom the disease has not manifested itself for many years. We are, fortunately, in a position to state that the evidence at hand indicates that the spirochæte survives in the body for many years and is transmissible by a parent herself free from the usual signs of the disease. I can best support this statement by citing one or two illustrative examples:

The first will show that the pallida appears in the late secondary lesions, although several years have elapsed since infection. Sobernheim and Tomaszewski³⁴ report three cases of syphilis in which infection occurred in 1898, 1900 and 1901, respectively. In the three recurrent secondary lesions reappeared recently, chiefly on the face—nose, lip and eye. In one of the cases an ulcerating condyloma alone was present. The pallida was found in the ulcers in all the cases. The number of the organisms was not large; and it would therefore seem that in these cases the multiplication is, perhaps, restricted, as we either know or suppose to be true of certain bacterial infections, for example, the persistent infection of cartilage and gall-bladder following typhoid fever. If this view is true, then the immature tissues of fetuses and young infants must be far more favorable to free and unrestricted develop-

ments of the pallida. The literature already contains the records of a sufficient number of examinations of infants, the subjects of congenital syphilis, to show that the pallida regularly occurs in the disease. This micro-organism has been detected in the lesions of the skin and internal organs, sometimes in large, sometimes in small numbers. In several cases studied after death a general infection with the pallida could be demonstrated.

My own experience is based upon the study of two congenitally syphilitic children, for which opportunities I have to thank Dr. Cragin and his resident, Dr. Ryder, of the Sloane Hospital. The first was a living child, presenting a roseolous and papular rash. A few drops of blood were expressed from an incised macule of the foot; it was very rich in spirochætae. The history of this child bears upon the questions suggested above—the persistence of the organism in a viable state in the body through a number of years, and its freer growth in infantile tissues. The mother was thirty years old and had borne three children. The first, born nine years before, is healthy and now living. She believes that eight years ago she contracted syphilis from her first husband; she had a roseolous rash and was treated for a short time. Five years ago she miscarried. She remarried a year ago, and at present she is free from visible signs of syphilis. The father is believed to be free of the disease. This case presents nothing very unusual in the lapse of several years between the time of infection of the patient and transmission to the offspring; but in view of the subject-matter before us it assumes an especial importance as bearing on the etiological position of *Spirochæta pallida*. The placenta of this child was also examined, and after long search a single pale, spiral organism was found.

The second child of my study was born prematurely to a mother showing unmistakable signs of syphilis; it lived three-quarters of an hour. There were marked syphilitic visceral and skin lesions. The pallida was found quite numerous in the skin, but it was found in very small numbers and only after long search in the liver. The bile, it may be mentioned, showed the organism in small numbers.

That congenitally syphilitic children are capable by suckling of infecting with syphilis healthy persons is, of course, established, and it is in conformity with this fact that Babes and Panea³⁵ could demonstrate the pallida in the pharyngeal secretions of a congenitally syphilitic child. They also found them, I may remark, in the conjunctival secretion.

So far, therefore, as a study of congenital syphilitic lesions can serve to confirm and establish spirochætae pallida as the cause of syphilis, this has been done in part. Doubtless many more examinations will be made, through which important data—whether pointing one way or the

34 Loc. cit.

35 Berliner klin. Wochenschrift, 1905, XLII, 865.

other—will be accumulated. Perhaps these data will serve to bear upon the question, still perhaps not wholly settled, whether the placental circulation is or is not previous to syphilitic virus, and thus to shed an illuminating light upon those cases in which the child has presumably become infected from a post-conceptional infection in the mother; and, now that we are indulging our hopes, some light may be thrown upon that remarkable condition of supposed immunity, or of cryptic infection, which is embraced in Colles' law.

It may perhaps be objected that in this presentation I have appeared to assume that *Spirochæta pallida* is the cause of syphilis, and that I have made this idea agree with certain facts of syphilitic phenomena. I should deplore having produced this impression; for while I have as a part of my theme considered the relation of the pallida to syphilis, I am still far from having myself a conviction of its position as immediate cause of that disease, for the establishment of which casual relation more stringent proof than yet produced will be required.

No consideration of the etiology of syphilis would be complete without reference to the late or tertiary lesions of the disease. So far as our present purpose is concerned the subject of these supposedly non-infective lesions can be dismissed with a sentence: A small number of gummata and other tertiary syphilides have been studied for the pallida with almost constant negative results. The exceptions to this rule must, I think, for the present be viewed with suspicion. No account can, of course, be taken in this connection of the study of gummata occurring in congenital syphilis, because of their close association with secondary lesions.^{35a}

However these findings in tertiary lesions may impress you they can hardly bear very finally upon the question of etiology. There is, however, another set of observations which may have greater significance. I refer to the finding of the

experimental primary syphilides in which I have had three successful inoculations with the syphilitic virus upon two macac species—the rhesus and cynomolgus. I speak of these first, since the inoculations were made before the question of the transmission of the pallida before—some time before—the announcement by Schaudinn that Metschnikoff demonstrated the spirochæta in a non-infective form in this species, which was already at the time of the announcement of the existence of the pallida. Thus far only one of these has been fully studied for the pallida, and the results found present in small numbers. The work of Schaudinn, Vienna, has since followed the pal-

la (Deutsche med. Wochenschrift, 1905, p. 1665). The fact that the pallida may occur in the late lesions of different appearance than the usual spiral form was first demonstrated by Landsteiner (Sitzungsberichte der k. k. Akademie der Wissenschaften in Wien, CXIV, Abt. III, June, 1905). The successful transmission of syphilis to the monkey by the inoculation of a large amount of gummatous ma-

trix a. d. akad. Anzeiger, k. k. Akad. d. Wiss. Wien, No. XVII. Ref. in Wiener klin. Wochenschrift, 1905, p. 942. Bull. de l'Institut Pasteur, 1905, III, 540.

lida through two monkeys, the second animal having been successfully inoculated with the virus of the first.

I have already carried you so far that I hesitate even to allude to another topic; and yet I cannot close this address without stating that although many negative control examinations have been made upon healthy persons and with diverse pathological products, one or two writers³⁷ have claimed to find the pallida type of spiral in ulcerated tumors and in a non-syphilitic papilloma.^{37a} The question of similarity of species found in these growths with the pallida is a disputed one, upon which I shall not enter. The means at our command at present, upon which to base a classification, are too few and inadequate to settle so important a discussion. It may, however, be remarked that there will doubtless be described among the host of spiral micro-organisms that must exist in nature, forms which approach more or less closely to the pallida type. But until cultivations can be secured and experimental inoculations tested we shall have to content ourselves with such considerations as those of morphology, staining reactions and relation to specific lesions, upon which data we must base our faith or disbelief that a great and epoch-making discovery has been made.

BIBLIOGRAPHY.

This list includes a large part of the papers which have appeared on the *Spirochæta pallida*, but it does not include those cited in the body of the lecture.

Bandi and Simonelli: Ueber die Anwesenheit der *Spirochæta pallida* in sekundär-syphilitischen Manifestationen und über die zu ihrem Nachweis angewendeten Färbungsmethoden. Münch. med. Wochenschrift, 1905, LII, 1668.

— Sulla presenza dello *Spirochæta pallida* nel sangue e nelle manifestazioni secondarie di sifilide. La Riforma medica, 1905, XXI, 791.

Buschke and Fischer: Ueber das Vorkommen von Spirochæten in inneren Organen eines syphilitischen Kindes. Deutsche med. Wochenschrift, 1905, XXXI, 791. Nachtrag, 839.

Buschke: Ueber Spirochætenbefunde bei Syphilis. Berl. klin. Wochenschrift, 1905, XLII, 731.

Davidson: Spirochætenfärbung mit Kresylviolett. Berl. klin. Wochenschrift, 1905, XLII, 985.

Dudgeon: The Staining Reactions of the *Spirochæta pallida* in Syphilis. Lancet, 1905, p. 522.

Ehrmann: Diskussion. Wiener klin. Wochenschrift, 1905, XLVII, 593.

Fabry: Spirochæten bei Syphilis. Deutsche med. Wochenschrift, 1905, XXX, 1469.

Fraenkel: Ueber das Vorkommen der *Spirochæta pallida* bei Syphilis. Münch. med. Wochenschrift, 1905, LII, 1129.

Giemsa: Bemerkungen zur Färbung der *Spirochæta pallida* (Schaudinn). Deutsche med. Wochenschrift, 1905, XXXI, 1026.

Herxheimer and Hübner: Ueber Darstellungsweise und Befund der bei Lues vorkommenden *Spirochæta pallida*. Idem., p. 1023.

Herxheimer: Münch. med. Wochenschrift, 1905, p. 1861.

Jacquet and Sevin: Recherches sur la spirille de Schaudinn dans les accidents tertiaires. Bull. Soc. méd. des hôp. de Paris, 1905, p. 420.

Kraus, R.: Ueber die ätiologische Bedeutung der *Spirochæta pallida*. Wiener klin. Wochenschrift, 1905, XLVIII, 592.

Lehmann: Die neueste Forschung über Infektionskrankheiten. Münch. med. Wochenschrift, 1905, p. 1171.

Lesser: Demonstration. Med. Klinik, 1905, I, 717.

Levaditi: Syphilis congenitale et *Spirochæta pallida* (Schaudinn). C. R. Soc. Biologie, 1905, LVIII, 845. La Presse médicale, 1905, p. 337. La syphilis, 1905, III, 526.

Levy-Bing: Des moyens de coloration des *Spirochæta pallida*. La Bulletin médical, 1905, XIX, 572.

— Recherches des *Spirochæta pallida* dans le sang des syphilitiques. Idem., p. 605.

— Action du mercure sur la spirochætes en général et sur la *pallida* en particulier. Idem., p. 631.

37 Thesing, Berliner klin. Wochenschrift, 1905, XLII, 732; Münchener med. Woch., 1905, LII, 1337.

Kiolemenoglou and V. Cube, idem., p. 1275. Hoffmann, Berliner klin. Woch., 1905, XLII, 880 and 1022. Bonhoff, idem., p. 1142. Borrell, Comp. rend. Soc. de Biologie, 1905, LVIII, 770. Moritz, Deutscher Archiv für klin. Medizin, 1905, LXXXIV, 459.

37a Of especial interest are the reports of Castellani (British Medical Journal, 1905, p. 1330) on parangi (yaws) in the lesions of which a spiral organism, bearing close superficial relation-

ship to the pallida, has been found by him.

- Munzer: Ueber das Vorkommen von Spirochäten bei syphilitischen und anderen Krankheitsprodukten. Berliner klin. Wochenschrift, 1905, p. 1144.
- McWeeney: Spirochæta in Syphilis. British Med. Journal, 1905, p. 2319.
- Nigris: *Spirochæta pallida* und *refringens* nebeneinander im Blute bei hereditärer Lues. Deutsche med. Wochenschrift, 1905, p. 1431.
- Nobécourts, Levaditi and Darré: Syphilis congenitale et *Spirochæta pallida* (Schaudinn). C. R. Soc. Biol., 1905, LVIII, 1021.
- Oppenheim. Diskussion. Wiener klin. Wochenschrift, 1905, p. 594.
- Oppenheim and Sachs: Eine einfache und schnelle Methode zur Darstellung der *Spirochæta pallida*. Deutsche med. Wochenschrift, 1905, p. 1156.
- Paltauf: Diskussion. Wiener klin. Wochenschrift, 1905, p. 593.
- Paschen: Demonstration. Münch. med. Wochenschrift, 1905, p. 932.
- Pfeilcke: Diskussion. Berliner klin. Wochenschrift, 1905, p. 731.
- Ploeger: Die Spirochäten bei Syphilis. Münch. med. Wochenschrift, 1905, LII, 1381.
- Proca and Vasile-cu C. R. d. Soc. Biol., 1905, LVIII, 1044.
- Queyrat and Joltrain: Recherches des *Spirochæta pallida* de Scauinn dans les chancres syphilitiques. Bull. des hôp. de Paris, 1905, XXII, 559.
- Rille: Ueber Spirochätenbefunde bei Syphilis. Münch. med. Wochenschrift, 1905, p. 1377.
- Rille and Vockerodt: Idem., p. 1620.
- Reischauer: Ein weiterer Spirochätenbefund bei hereditärer Lues. Deutsche med. Wochenschrift, 1905, p. 1350.
- Reitmann: Zur Färbung der *Spirochæta pallida* (Schaudinn). Idem., p. 997.
- Salmon: Présence des *Spirochæta pallida* chez en enfants syphilitique héréditaire. C. R. Soc. Biol., 1905, LVIII, 883.
- Sabolotny and Tschlenow: Spirochæta in Syphilis. Russky Wratch, 1905, 23 and 24. Reviewed, Münch. med. Wochenschrift, 1905, No. 35.
- Scholtz: Ueber den Spirochätennachweis bei Syphilis. Deutsche med. Wochenschrift, 1905, p. 1467.
- Spitzer: Ueber Spirochätenbefunde in syphilitischen Geweben. Wiener klin. Wochenschrift, 1905, p. 822.
- Volk: Diskussion. Idem., p. 593.
- Viullemin: Sur le dénomination de l'agent présumé de la syphilis. C. R. Acad. Science, 1905, CXL, 1567. Semaine médicale, 1905, p. 284.
- Wechselmann and Loewenthal: Untersuchungen der Schaudinn-Hoffmannschen Spirochätenbefunde in syphilitischen Krankheitsprodukten. Mediz. Klinik, 1905, I, p. 657.
- Walters: Ueber die bei Syphilis gefundenen Spirochäten. Ibid., p. 963.

A PLEA FOR THE MORE CAREFUL EXAMINATION OF DISEASES OF WOMEN BY THE GENERAL PRACTITIONER.

BY WILLIAM EDGAR DARNALL, A.M., M.D.,
OF ATLANTIC CITY, N. J.

THE average general practitioner of medicine, unless he has leanings toward gynecology, either does not realize the importance of a thorough and painstaking investigation of pelvic diseases in women or else often wilfully slights them. It is the object of this paper to emphasize the need of a more thorough consideration of the woman and what ails her when she comes to her medical adviser with a long category of her multitudinous complaints. Unless the case is a clear and straight one of something else, the woman's pelvic organs must always be considered. Most of the ill feelings of a woman center about her pelvis. If these organs are perfect in their function and development she is usually happy and well; if there is disorder of any kind, she is miserable and sick all over, and scarcely knows what is the matter with her. She feels so badly that she goes to her physician whom she trusts and lays the case before him. Does he prove himself worthy of the trust reposed in him by carefully examining every part of her physique until he finds out the trouble, root and branch, and the acting focus of her complaints? Oftentimes he does not consider her pelvic organs at all; she is only one of the hosts of nervous complaining women. Some-

times he is convinced that she may have some "womb trouble," but does not think it necessary to make an examination, which is the only way to find out what "womb trouble" she really has. In many cases, if he is busy he dismisses her with a prescription for her most troublesome symptom, and really makes no diagnosis at all. Nerve tonics, hypnotics, sedatives, narcotics, migraine pills, indigestion remedies and many other things are the stock in trade for this symptom doctor. As long as the medicine is taken pain may be dulled and some alleviation of symptoms may take place, but no permanent good is accomplished, and the symptoms all come trooping back when the medicine gives out. The doctor is in too big a hurry, too busy, or too lazy to make a diagnosis by carefully examining his patient; or in some cases is incompetent to do so. The patient goes on suffering week after week, and year after year, loses all faith in the medical profession, and after arriving at a state of chronic invalidism seeks the quack with the latest fad, or lands in the office of a gynecologist who is interested enough in her case to investigate it and find out the real cause of her sufferings. It may then be discovered that what might at first have been easily righted by the proper measures has now assumed such serious proportions that the patient must be subjected to a serious operation, and often one attended with even the risk of life, whereas if treatment had been instituted in time much simpler measures would have been necessary.

There is nothing more common in the daily life of any physician than that group of symptoms from which women suffer and which indicates reflex irritation from disordered pelvic organs. It is beyond comprehension how these cases, instead of being investigated by a thorough examination and the cause of the trouble traced to its true source, are treated and drugged for everything else in the category of disease but the right thing, which is often overlooked altogether. They are frequently anemic, suffer with neuralgia and fugitive pains all over the body, have insomnia, loss of appetite, indigestion. They are nervous, restless, melancholic, hysterical, subject to fainting fits, prone to emotional attacks and lose interest in their surroundings; they have hot and cold flushes, cold extremities, bladder and rectal troubles; their eyes hurt, head aches, limbs and backs ache and the whole world is out of joint for them.

They are treated for stomach troubles when they have none; liver complaints, kidney diseases, lithemia, rheumatism, constipation, neurasthenia, hysteria, and a host of other things too numerous to mention. Many a neurasthenic and hysteric patient would reveal the true cause of her nervous condition if the pelvis were investigated, and these cases should always be examined unless pelvic disease can be absolutely eliminated.

Whenever a patient comes complaining of these varied and more or less indefinite symptoms,

especially if they are associated with pains in the back low down and across the hips and with vertical headaches, no time should be lost in attempting to treat or relieve symptoms, but a careful and systematic examination should be made of the pelvis. If no cause can be found there for the symptoms, the whole body should be gone over, until the cause is found. Usually, however, the trouble will be found in the presence of congested pelvic organs, endometritis, ovaritis, flexions, versions or prolapse of the uterus or ovaries, cervical erosions and lacerations, perineal tears with relaxed vaginal outlet, or, it may be, ovarian, tubal or uterine tumors of more or less consequence. All of these troubles should receive prompt and intelligent treatment, for by the neglect of even the least of them further disorder and more serious conditions are invited and they usually accept the invitation. If neoplasms of the uterus are found, diseased ovaries, pus tubes, pelvic abscesses or extra-uterine pregnancy, surgery should be resorted to at once, as soon as the diagnosis can be made. Operation should not be delayed until accumulated suffering has invalidated the patient and lowered her vitality, or until such complications have developed that the hope of a successful outcome is destroyed.

It is an undoubted fact that the weak point of the average practitioner is diagnosis, and without accurate diagnosis there can be no satisfactory treatment. Because a man is not doing surgery is no reason why he should not know the principles of surgery and be able to make an accurate surgical as well as medical diagnosis. It is expected of the surgeon that he should first be thoroughly competent as a physician, and why should not the rule work the other way.

In a recent editorial in the *St. Louis Medical Review* on the "Value of Surgical Articles to the General Practitioner," the editor says: "... But surgical articles will not help the man seeking light with a case of intestinal obstruction on hand. It is wrong to criticize him for not helping him with that. But suppose it is one of those cases of intestinal obstruction that nothing but surgical measures will help. He is not studying the surgical details of the question, he does the exact psychological movement at which operation by one of his more professed colleagues would have been successful, and he thus loses a patient's life, his entire fortune and the kindness attaching to a good diagnosis at all of the same time. But what does he care of details of the liver. He has never met with a case and he knows none of his confidantes who has. And meanwhile in the neighboring city the surgeon is operating on such a case for an amount to be hoped of a beneficial result because one of these same confidantes who has never encountered a case of hepatitis of the liver has been losing valuable time over this very case which he has been treating for pleurisy with effusion."

Grasping the surgical opportunity is the important factor in the prognosis of surgical cases.

Early operation where surgery is indicated at all saves life, conserves health and prolongs usefulness; late operations mean recoveries that are imperfect, more serious risks and greater loss of life. Every surgeon will immediately appreciate this thought, and could every physician stand daily by the operating table and experience practically the added difficulties encountered by reason of complications due to delay and loss of valuable time while the disease is progressing he would be less anxious to be considered ultra-conservative by waiting until everything else has been tried before suggesting operative measures; and less hasty in accusing surgeons of wanting to rush every patient to the knife.

This is strikingly apparent in cases of gall-bladder disease, in which repeated attacks of inflammation have so obscured the anatomical relations by successive crops of adhesions that the difficulties as well as the risks of operation are materially increased; or in cases of appendicitis that reach the surgeon too late on account of the temporizing expectancy of medical treatment. It has been said that no case of appendicitis ought ever to be lost, or putting it another way, that there was a time in the history of every case of appendicitis in which an operation would have saved the life. This same principle applies to all pelvic diseases. Every attack of pelvic inflammation in a woman, although slight, means the formation of a new crop of adhesions to surrounding structures. Every new adhesion means an added difficulty in the course of the operation and a greater risk to the patient. It is certainly true that the risk of every abdominal operation where inflammation has been present bears a constant ratio to the number and character of the adhesions that have to be dealt with. The following case is cited to illustrate this statement and to emphasize the serious condition the patient may drift into purely from delay in suggesting operative measures. It is but a type of hundreds of cases seen by operators every year, and it also shows how a reputable practitioner will often fail to find out the true condition by neglecting to investigate his case thoroughly and consequently allowing his patient to go beyond the line of safety.

Case I.—A. L., aged twenty-seven years, white, sent into the hospital on account of a bad discharge, with the request that she be curetted. Her general appearance is good, has borne one child, no miscarriages, menses regular and without pain, vulva normal, sleeps well, appetite fair, digestion good and bowels regular. She has no laceration of perineum or cervix, bladder gives no trouble no hemorrhoids. On examination the whole abdomen is tender and hard, endometrium inflamed and there is a purulent discharge. A mass the size of an orange can be felt on the left side. Gives history of several attacks of pelvic inflammation and pains all through abdomen. On opening the abdomen everything in sight was found bound together with the densest adhesions

firmly organized, the whole mass being adherent to the anterior peritoneum. In separating the adhesions so much difficulty was experienced that at first it seemed almost impossible to find the planes of separation and reach the mass, which proved to be a large abscess of the ovary. This was evacuated and both tubes and ovaries removed. Large raw areas were, of course, left all over the surfaces of the bowels. An attempt was made to repair the coats of the bowel wherever they were torn, but the tissues were so friable that it was almost useless to do so. The abdomen was closed with drainage through the vagina. On the sixth day after operation urine and fecal matter showed on the gauze and we knew we had both ureteral and fecal fistulæ to deal with, two of the most troublesome complications possible. After long suffering the weakened patient was finally carried off by a severe hemorrhage from the fistulous tract.

Does not such a case teach a valuable lesson to the "dilly-dallying waiters," or to the physician who treats expectantly such cases through repeated attacks of pelvic inflammation and even general peritonitis, without ever stopping to take the trouble to make a careful examination and satisfy himself that there is no abscess formation or neoplasm of any sort? Certainly had this patient, naturally of a vigorous constitution and strong vitality, been brought to the surgeon's table before these repeated attacks of inflammation had agglutinated everything in the abdominal cavity in firmly organized adhesions, the operation would have been an easy one, practically without great risk. A life would have been saved for the home and the community, and all this was lost by lazy medicine, imperfect diagnosis and failure to grasp the surgical opportunity afforded by an earlier operation.

Another case may be briefly referred to in order to show that these complaints do not always receive from the practitioner the careful consideration and investigation they are entitled to.

Case II.—C. M., colored, aged thirty years, was referred to the hospital for a ventrosuspension because she had pains in the abdomen, and told her physician "she thought her womb came down." On examination it was found that she had no lacerations of the perineum or cervix or relaxed vagina, and her external sexual organs were normal; but the uterus was retroflexed and firmly fixed to the rectum and to the left by strong adhesions. Both tubes were enlarged and the left ovary cystic. The operation was a tedious one as well as serious on account of the difficult adhesions encountered, the patient finally dying of shock and exhaustion. Here the diagnosis had never been made by the attending physician, who afterward admitted to me that he had not even examined the patient.

Experiences like these are common to the gynecologist and abdominal surgeon. They should not be. In some cases the practitioner has not

perfected himself in diagnostic skill in this class of cases and may be doing the best he can, but failing to discover the condition present; in others it perhaps is an antipathy to this class of work; but what shall be said of him who does not even try, and fails even to make an examination of his patient, in the face of such conditions that are serious or may become so at any time, thus allowing his patient to drift beyond the danger line over which she cannot come back, to miss the opportune moment at which a surgical operation might have been of benefit, and to lose her life or most seriously jeopardize it?

THYROTOMY VS. LARYNGECTOMY: NOTES ON THE FREQUENTLY MALIGN NATURE OF CHRONIC HOARSENESS.

BY CHEVALIER JACKSON, M.D.,
OF PITTSBURG, PA.

It is not the writer's purpose to weary you with a multitude of cases, prolixity of statistics, or lengthy argument. Two strongly contrasting typical cases will suffice to illustrate a point, the proof of which can be seen frequently in any large throat clinic. The point the writer wishes to urge is the frequently malignant nature of chronic hoarseness, and the necessity for early diagnosis while the case is still operable by thyrotomy, whereby not only the life, but the voice, the comfort, the happiness and the usefulness of the patient may be saved. If the diagnosis be made late, as it usually is, total laryngectomy offers the only hope of prolonging life.

The writer has said nothing regarding endolaryngeal operation. He can only say that he considers his years of training to acquire endolaryngeal skill an utter waste of time so far as the surgery of malignant disease is concerned. It is ten times worse than letting the growth alone, for while failing to extirpate radically it induces local spread and metastatic deposit.

Case I. Laryngectomy, total.—M. M., aged fourteen years, for a year or two had noticed himself rather more subject to "colds" with hoarseness which disappeared between times until the last month or two, when it became constant. There was almost no cough, no dysphagia or odynphagia, no pain, no foulness of breath, no expectoration of blood or pus, no cachexia, no emaciation, not the slightest loss of weight. In short, he was the picture of health; yet laryngoscopy by the family physician revealed an epithelioma about the size of a pea on the right cord. The attendant urged the patient to come to the writer for immediate thyrotomy. The patient came but scouted the idea of cancer. He said he had often had even greater hoarseness before, and got well. He lost three months of valuable time in getting opinions and treatment from irregular practitioners and then returned to the writer for operation. What had been intrinsic epithelioma, readily cur-

Read at the Meeting of the Pennsylvania Medical Society, September 26, 1905.

able by thyrotomy with good return of voice, had become extrinsic by extension, with total laryngectomy as the only hope of prolonging life. With the assistance of the family physician, the writer removed the larynx and a few scattered lymphatics along the trachea and beneath the carotids on the right side. A contrivance of the writer's enabled useful whispered voice, but eight months later a recurrence in the cervical lymphatics with pulmonary and hepatic metastatic deposits quickly terminated the case.

Case II. Thyrotomy.—C., thirty-seven years of age, had a slight hoarseness of one month's duration, attributed by him to a severe "cold in the head and throat." No pain, no expectoration, no hemorrhage, no odor, no loss of weight—in fact, not one symptom but the hoarseness. Laryngoscopy showed a small epithelioma (histologic report later showed it to be the squamous-celled variety) on the under surface of the right vocal cord. The writer did a thyrotomy. The thyroid cartilage was split in the median line, both halves retracted, the growth with a wide area of surrounding healthy tissue, including the entire right vocal cord, was clipped out. Matters of technic are without the scope of this paper. The wound was healed in ten days, the voice was a loud whisper during the first three months, after which a rough phonation began to appear, and now, after four years, the voice is practically perfect not only for speaking but for a simple song of limited range.

Statistics wearisome in length could be presented, but the brief notes of these two typical cases suffice to illustrate the following points, which prolixity could only emphasize:

1. The patient with cancer of the larynx must have his disease discovered early, else a cure is well-nigh hopeless.

2. If discovered early the comparatively slight operation of thyrotomy will cure.

3. If discovered late, total or partial laryngectomy will probably prolong life for a variable period, but recurrence is fairly certain and the short extension of existence lacks many pleasures and comforts.

4. The early curable stages of laryngeal cancer are characterized by nothing but hoarseness, which may disappear and recur. Cough, odor, pain, odynphagia, glandular involvement, external swelling, emaciation, cachexia, etc., are present only after the curable stage is passed.

5. The curable case may come in "to get something for a cold that he cannot shake off," without any idea of a serious condition, and throw us off our guard.

In conclusion, the writer begs to say that although the surgery of malignant diseases is discouraging, it is, in the larynx, only so when seen late. In early thyrotomized cases the prognosis as to cure is better than it is in chronic laryngitis.

Let us all bear in mind the frequently malignant nature of chronic hoarseness.

TUBERCULOUS KIDNEY.

BY J. BAYARD CLARK, M.D.,

OF NEW YORK;

GENITO-URINARY SURGEON TO BELLEVUE HOSPITAL OUT-PATIENT DEPARTMENT; ADJUNCT ASSISTANT GENITO-URINARY SURGEON BELLEVUE HOSPITAL; ASSISTANT SURGEON TRINITY HOSPITAL.

THE following case is reported because the steps toward diagnosis were interesting, as illustrating the usefulness of the cystoscope, the cryoscopic examination of the blood, and in this instance the radiograph.

Case.—B. McM., a young Irish woman, single, twenty-eight years old and employed as a domestic, was very kindly sent to me for diagnosis and treatment by Dr. F. Tilden Brown. She was admitted to Trinity Hospital November 27, 1904.

Her father died of pleurisy at the age of forty-one, otherwise her family history was unimportant. She came to this country six years ago. She had always been perfectly healthy and able to work. Three years ago she commenced to suffer occasionally with a rather sharp pain in the lumbar region, which would last an hour or two, and which she thought was more on the right side than on the left. This continued for a little over a year, when she first noticed that she had to pass her urine more frequently than usual and that it was attended with some discomfort. The pains in the back at this time seemed to disappear and the frequency of micturition increased rapidly, until at the end of a month she was compelled to urinate every fifteen or twenty minutes during the day, and five or six times at night. The discomfort which had attended urination developed into a burning pain, most intense as the last few drops of urine were being voided.

She then consulted a physician, who examined her urine and told her she was suffering from catarrh of the bladder. Internal remedies were prescribed, but the condition was not relieved. Five months dragged along in this way and she then entered a hospital, where she remained for six weeks, during that time she received as treatment irrigations of the bladder. When she left the hospital her urination was somewhat less frequent but more painful. She returned to work, and for a little over a year she attended to her duties, in the meantime receiving by way of treatment more bladder irrigations. At this time she noticed that she occasionally passed a little blood at the end of urination. She lost thirty pounds in weight, from 156 to 126 pounds, and had become too weak to attend to her work any longer.

Physical Examination.—The loss of weight was evident, but she was not emaciated. Somewhat anemic, cheeks flushed; heart and lungs were normal; abdomen, except for the following, was normal: the lower pole of right kidney could be felt, but no more than in many healthy females; it did not appear to be enlarged; there was no tenderness. The only point of tenderness on pressure was over the urinary bladder. The

external genitals were normal; bimanual examination revealed nothing abnormal further than tenderness of the bladder. The patient was put to bed on a light, nourishing diet, the only medication being five grains of salol three times a day, by way of preparation for a cystoscopic examination a few days later.

November 28.—First day after admission to hospital, the urine analysis of a catheterized specimen showed a cloudy pale amber urine, specific gravity 1.012, amphoteric reaction, a trace of albumin, no sugar, no bile, small amount of indican, urea .81 per cent. and chlorides 1.14 per cent. The microscope showed a small amount of mucus, a moderate amount of pus, no blood or casts, a few bladder (?) epithelia. No tubercle bacilli were found.

At the end of a week the following observations were made: An afternoon rise of temperature of 6/10 to 8/10 of a degree F., a pulse between 70 and 80, average amount of urine for twenty-four hours, 47 ounces, average number of times urine was passed in twenty-four hours, ten; average amount each time, between four and five ounces; urination a little less frequent during the night; patient sleeping well during intervals, and preserving a fair appetite.

Up to this time there was nothing upon which to build a diagnosis. The history was merely suggestive. The physical examination and the urinary analysis simply bore out the previous supposition of a bladder affection.

December 7.—Under cocaine anesthesia a thorough cystoscopic examination was made. The base of the bladder on the right side was slightly hyperemic, especially the trigone. The right ureteric orifice was about three times larger than its fellow, elliptical in form, margin thickened and rigid, all muscular action had gone; it remained open and its cavity was highly inflamed, small jets of cloudy urine issued infrequently. Backward and to the right of this ureter-mouth for about 2 cm., a cord-like elevation of the mucous membrane could be seen; this I took to be the thickened intramural portion of the ureter. At about the upper extremity of this was an irregularly ulcerated area about one centimeter in diameter; leading from this upward to the fundus of the bladder was a narrow ulcerated path which terminated in another irregular ulceration, which was twice the size of the first; this was flecked with small grayish-white patches, and was surrounded with a blush of hyperemia. Except for a low grade of inflammation which gave the mucous membrane a slightly softer appearance, the rest of the viscus was negative, including the left ureter mouth, which gave forth at frequent intervals, jets of clear urine.

This examination made, to my mind, tuberculosis of the right kidney extremely probable. Frequent examinations of the urine for tubercle bacilli were then instituted, and continued for about three weeks without avail. Guinea-pigs

were then inoculated but died of sepsis within a week or ten days. Tubercle bacilli were found, however, on two occasions within this time in the urine. They were in very small numbers but characteristically grouped.

The next step in the process of diagnosis was to obtain the separate urines, with a view not only of learning more accurately the condition of the diseased organ, but of getting an estimate of the functioning capacity of its fellow.

On January 3, a catheterizing cystoscope was introduced. It was found impossible to advance a catheter beyond the mouth of the right ureter, on account of obstruction undoubtedly due to its diseased condition at that point. The left ureter was easily catheterized and 16 cubic centimeters of clear, light-colored urine obtained. This, on examination, was of neutral reaction, no sugar or albumin present, urea 1.5 per cent. The microscope showed a few red blood cells and epithelia, which commonly occur with the use of the ureteral catheter. No tubercle bacilli were found.

It will be seen that this urine was that of a healthy kidney and that the abnormal elements previously obtained came from the right kidney and ureter, with the bladder participating.

To make more sure of sufficient renal function, Dr. Alfred T. Osgood was good enough to determine the freezing point of the blood, which was -0.55 degrees C., thus showing no undue molecular concentration.

I then took the patient to Dr. L. G. Cole, who took an excellent radiograph. [Although the X-ray showed the situation beautifully, it was unprintable.] The picture added much weight to the evidence already collected, for it showed a shadow of considerable density, the outline of which softened out almost too gradually to be mistaken for a stone. A growth of firm connective tissue replacing parenchyma seemed the most likely interpretation, and the correct one, as the specimen later showed.

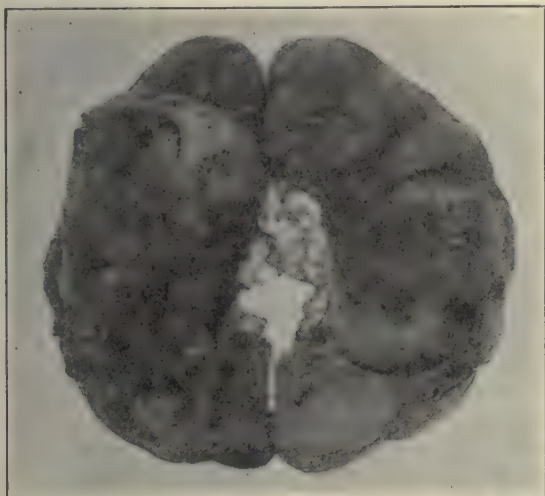
The *diagnosis* was then as follows: Primary tuberculosis of the right kidney with extensive destruction of the organ and extension of the process to the bladder. The left kidney functionally capable of carrying on the work of elimination for the body.

On January 18, I removed the right kidney by the extraperitoneal route.

Pathological Examination of Kidney.—Weight, 144 grams; length, 10.5 cm.; width, 4.5 cm.; thickness, 4.5 cm. Gross appearance: The surface retains the type of fetal lobulation. Through the capsule are seen many small foci about pinhead size, which resemble miliary tubercles. These are most numerous about the central zone of the organ. There is a marked engorgement of the vessels beneath the capsule and an extensive subcapsular hemorrhagic exudate, giving a dark red color to almost the entire extent of the surface. Section through the convexity of the organ in its longitudinal axis shows

the following: Average length of pyramids, 2.8 cm.; average thickness of cortex, 0.6 cm. A thin hemorrhagic zone beneath the capsule. Cortex very light-gray color, markings obliterated, line of junction with medulla indistinct, in places indistinguishable. Occasional small gray bodies, pinhead in size, which resemble tubercles.

The medulla has almost lost its identity by being converted into a grayish fibrous tissue, in



which there are abscess cavities, the largest measuring 2 cm. in diameter. The two largest of these cavities encroach on the cortex, and are lined by cheesy-looking material, and about one is a considerable hemorrhagic exudate.

The pelvic wall is thickened and contracted. Its mucosa has a rough, cheesy-looking appearance. At one point in the fibrous portion of the wall, is a hemorrhagic exudate 1.5 cm. in diameter.

The blood-vessels show some thickening.

Microscopic Examination.—Connective tissue system. The capsule is represented by a thin, ragged layer of fibrous tissue which is permeated by inflammatory exudate. Beneath the capsule there is a layer of vascular fibrous tissue of considerable thickness. The fibrous tissue passes into the medulla in places as broad bands of connective tissue. The fibrous tissue is quite cellular and there are many areas of small, round cell infiltrations. There are many miliary tubercles scattered through the newly formed tissue. They are mainly fibrous in the cortex, but in the medulla they are represented by large areas of coagulated necrosis surrounded by fibrous tissue. Many giant cells are associated with these tubercles. The newly formed tissue beneath the capsule is infiltrated by hemorrhagic exudate. The capsule of Bowman in many places is much thickened. The intertubular tissue is increased in strands and islands. A few places present the normal amount of stroma.

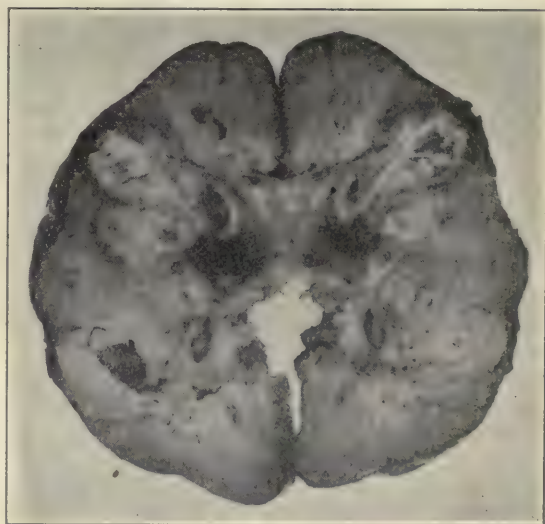
Parenchymatous System.—In the fibrous tissue zone beneath the capsule, the tubules have almost

entirely disappeared. An occasional tubule can be seen much diminished in size with the epithelium desquamated or flattened. Some contain hyaline casts, others hemorrhagic exudate. There is extensive parenchymatous degeneration and disintegration of the renal epithelium generally. Some of the tubules are dilated, and their epithelium flattened, others have their lumen completely filled by their swollen epithelium. In some instances, the epithelium is entirely desquamated and the tubule empty. Some contain hemorrhagic exudate, others casts.

Vascular System.—The walls of the large vessels are slightly thickened, in some places the intima, in others the adventitia. The capillaries of the glomeruli are congested, and the spaces about some contain hemorrhagic exudate. Many of the glomeruli have undergone sclerotic changes, and are represented by islands of the firm fibrous tissue in which is some hyaline change.

The abscesses described in the gross have an inner layer of coagulated necrosis and an outer wall of firm fibrous tissue, in which are scattered a few giant cells. The fibrous tissue is surrounded by a zone of hemorrhagic exudate which infiltrates the chronic interstitial change involving the cortex. The hemorrhagic area in the wall of the pelvis shows miliary tubercles, round-cell infiltration, edema and hemorrhagic exudate.

The patient reacted well from the operation and her postoperative course was uneventful.



I was most forcibly struck by the immediate and almost complete cessation of her most distressing symptom, namely, the great urgency of micturition. After the first twenty-four hours, during which time she was catheterized, she was able to hold her urine five, six and sometimes seven hours. She enjoyed for the first time in two years, uninterrupted nights of sleep. The point of interest to be noted here, is that the irritating character of the material coming from

the diseased kidney was the predominating causal factor of the frequent urination, and not the vesical ulceration. The pain which accompanied urination still exists, but is progressively decreasing.

March 6.—Cystoscopy: The general appearance of the bladder mucous membrane improved. The right ureteric orifice has contracted to one-half its former size, no signs of active inflammation. The ulcers are reduced to about two-thirds their former size, their edges are healthy and there is no surrounding hyperemia. The left ureter-mouth and surrounding area is, as before, normal, clear urine issues from its mouth. The urine analysis gives no evidence of kidney involvement. The patient is passing 45 to 55 ounces of urine daily, at almost normal intervals and in normal amounts. The wound has healed but for a small sinus, which is progressing favorably.

The patient is gaining weight and strength. She has gone to the country to complete her convalescence.

616 Madison Avenue.

**A SIMPLE DEVICE FOR OPHTHALMOSCOPIC WORK,
DEvised ESPECIALLY TO MEET CONDITIONS
EXISTING ON BOARD SHIPS, BUT CAPABLE
OF GENERAL APPLICATION.**

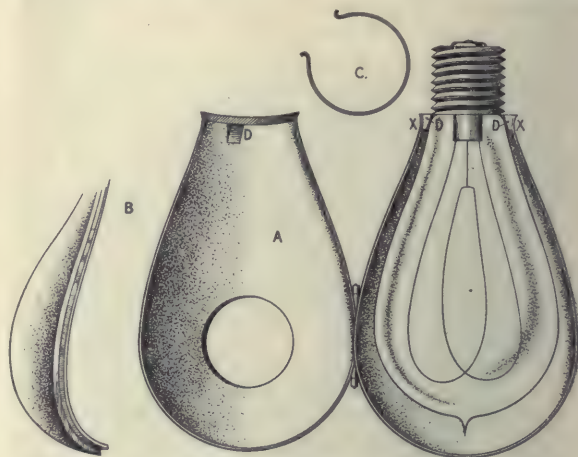
BY R. E. RIGGS, M.D.,
ASSISTANT SURGEON U. S. ARMY.

EVERYONE familiar with the use of the ophthalmoscope knows how difficult it is to get a satisfactory light under the varying conditions which confront one trying to do eye-work outside of a well-equipped office. Naval surgeons especially, when serving on board ship, are at a great disadvantage in this respect, first, in not having special apparatus allowed them, and also because the ordinary lamp made for this purpose is too elaborately arranged and unwieldy to withstand the rough usage incident to sea-going. In addition, most of these require gas for illumination.

I have overcome all difficulties by simply enveloping an ordinary 16-candlepower frosted electric bulb in a thin sheet of lead. The accompanying drawings illustrate the relatively perfected shield which I now have in use. To make a perfect shield requires, of course, some mechanical skill, but it is easy with a jack-knife and a pair of pincers to mold the sheet to the general shape of the bulb, shutting out practically all light except that which passes through a spherical window about 1 inch in diameter, cut into the shield after it is applied. And that is exactly how I made my first shield.

Thus with a little ingenuity, and in a few moments, anyone who cares to try it, and has electrical attachments at hand, can construct for himself a portable and satisfactory light. It may be suspended from any convenient point and allowed to take a position just behind and to the outside of the ear on the side under examination.

Although any opaque shield might do, such as copper may dull by mercury or acids or copper deposited on the bulb by electrolysis, still I prefer the lead sheet because its dull modest luster hardly acts as a reflector at all. The light obtained is soft and equally distributed, and one is scarcely bothered at all by the corneal reflex. The background of the eye is distinctly though



A.—Perforated half of shield.

B.—One section of same, showing bevel *a*.

C.—A spring which when applied at *x* holds the shield shut.

D.—Wedges of incombustible material which are only points of contact between bulb and shield.

softly illuminated, and besides giving the observer an almost normal image, it inflicts upon the patient a minimum amount of discomfort.

With this arrangement one can easily observe the fundus without the use of a mydriatic, nor is it necessary to have a perfectly dark room. It also gives an equally good view in work about the ear, nose or throat.

**THE RELATION OF INCONTINENCE OF URINE TO
NEURASTHENIC SYMPTOMS, AND ITS
TREATMENT BY THE ISOLATED
INDUCTION SHOCK.**

BY A. D. ROCKWELL, A.M., M.D.,
OF NEW YORK;

NEUROLOGIST AND ELECTRO-THERAPEUTIST TO THE FLUSHING
HOSPITAL, ETC.

INCONTINENCE of urine, although mostly a symptom of early age, is not infrequently observed in persons of larger growth. In various forms and degrees it is occasionally associated with that form of neurasthenia where general constitutional symptoms predominate, and sometimes where the manifestations are distinctly and almost entirely local. To relieve a persistent local manifestation is often paramount to the relief not only of many a constitutional derangement, but of other local symptoms as well. The pathological relationship between incontinence and the varied symptoms of the neurasthenic, we may not

¹ Read before the New York County Medical Society, September 25, 1905.

discuss at this time even were it possible to throw much light on these relationships; but it is possible in some cases, fortunately, to relieve obstinate neurotic symptoms in both young and old, if we can succeed in relieving the incontinence with which they are associated and upon which they seem sometimes to depend.

The treatment of incontinence of urine, whether by internal medication, by topical applications, or by the various physical methods, external and internal, has yielded as a rule results quite unsatisfactory.

Electricity in the past has been no exception to this rule. It has been used for the most part as a tonic to the nervous system as a whole, or locally in the form of the galvanic or the rapidly interrupted faradic current. The difficulty has been that in the treatment of incontinence by electricity we have not sufficiently considered its etiology and pathology. Those cases that are due to an acquired or an organic lesion of the nervous system are generally beyond the reach of any treatment. Fortunately such cases are rare, the majority being known under the name of essential nocturnal incontinence, due to some dynamic alteration that in our ignorance we call functional. Demonstration has shown the existence of muscular atony, with failure of the external sphincter properly to functionate. This atony is believed to be due to incomplete development of the perineal striated muscles and the external sphincter of the urethra, which thus fail not only in their obedience to the will, but in their response to reflex influences. Such measure of success as formerly attended the efforts of the writer in overcoming this weakness, and it was far from constant or satisfactory, was through the use of the galvanic rather than the faradic current. Within the past few years, however, he has substituted for the rapid vibrations of the high-tension coil formerly used, currents of slow intermission, with distinctly better results.

Not every case of incontinence is curable by the isolated induction shock, or indeed by any other method. The majority of cases of constipation, for example, are not curable by electricity alone. The cases that are greatly benefited are those where there is defective intestinal innervation, or abdominal and intestinal atony. Even in these cases, if the atony is due to congenital defect, all that can be done is to improve the general health. No physical local method will avail. How frequently incontinence depends upon congenital deficiency, no one can say; a considerable proportion undoubtedly thus accounting for failures of treatment. The principle underlying any form of treatment looking to the amelioration of this annoying symptom of incontinence, therefore, is increase in the tone of the muscles controlling the act of micturition. We unquestionably fail to accomplish this end by the use of the rapid intermittances of the ordinary faradic apparatus. By this form of application we induce a condition of physiological tetanus, which in my experience

has sometimes been followed by an increase rather than a decrease in the severity of the symptoms. This is due to the recognized fact that physiological tetanus, especially when it is prolonged, exhausts rather than invigorates the muscular tone. A slow interruption, say one or two per second has a far different effect. Between each contraction the muscular fibers have a distinct period of rest, with the result that their power of vigorous voluntary contraction and relaxation is strengthened and not weakened. This at least is believed to be the case, since in no other way can be explained so satisfactorily the undoubtedly superior effects of these distinct rhythmic muscular contractions over the muscular tetanization produced by the more rapid interruptions.

In very young children the treatment is preferably and quite necessarily external, although there is no question that the best results are obtained by the introduction, when possible, of an olive-shaped electrode connected with the negative pole until it reaches the sphincter muscle. The indifferent electrode, consisting of some flexible metal covered with sponge or other suitable material is applied to the abdomen, or if the muscular contractions following the interruption of the current are objectionable, this electrode may be applied over the sacral region. The technique is simple, but not so simple as to be free from mistakes in its practical application. It is not the slowly interrupted faradic current that is called for, as is sometimes thought, but the isolated induction shock. Nothing could be more apt as an illustration of this important point than the following incident: A physician to whom I had recommended this measure in a case of incontinence associated with neurasthenic symptoms, and who intimated that he clearly understood the directions given, informed me subsequently that he had faithfully carried out these instructions, but with no result. In a personal interview I found that he had simply interrupted the ordinary faradic current with its vibrations of some 200 to the second. He was told of his mistake, and again undertook the treatment of the patient, and subsequently this is what he wrote: "What an ass I was . . . I am glad, though, to tell you that since I began the right treatment the patient has improved right along."

In the treatment one must be guided in great measure by the sensations of the patient, but if in the beginning the shocks are slight they can be gradually increased without difficulty, since no real pain accompanies the treatment, unless the strength used is far beyond the necessities of the case.

During the past five years fifteen cases of incontinence have come under my observation, all of which have been treated by the method described. Of these cases seven completely recovered and without relapse, four were greatly benefited but have suffered various relapses and cannot be classed as perfect recoveries, and four

cases disappeared from observation before giving the treatment a fair trial. One case alone I venture to report, not only as an illustration of the possible therapeutic value of the method, but because of the interesting relation of the symptoms to the nervous system.

Mary C., a large well-developed girl of thirteen, was brought to me October 17, 1903, suffering from great depression of spirits amounting almost to melancholia, associated with incontinence of urine.

The mother gave the following history, premising it by the statement that she herself had been the victim of incontinence from her earliest childhood, until her eighteenth year. To the age of seven or eight the patient had been as other children, but after an attack of scarlatina about this time she began to suffer from incontinence, and for five years she had rarely passed a night without voiding unconsciously a large quantity of urine. This weakness prevented her from spending the night away from home, or having any of her girl friends with her, and this inability to indulge in these ordinary and highly-prized amenities of girlhood greatly depressed her. She became subject to frequent attacks of profound melancholy, and it was more because of this symptom than for the incontinence for which she had already received much treatment—electrical and otherwise—that the patient was brought to me.

As near as could be gathered, both currents—the galvanic and faradic—had been used with some persistency, one electrode upon the perineum and the other alternately over the abdomen and back. The mother and patient both agreeing to the internal method of application, the positive electrode was applied to the sacral region, and the negative, consisting of an olive-shaped electrode, introduced through the urethra to the sphincter muscle. The isolated induction shock was then administered at the rate of one in five seconds or about twelve shocks per minute. The applications were repeated every other day for a time, and then less frequently. The character of the treatment so far as concerned rapidity of interruption was approximately adhered to throughout the whole course. The patient finally recovered, but the progress toward complete recovery was neither rapid nor constant, some thirty-five applications having been administered through a period of five months. During this period she had alternations of comparative freedom from attacks and their recurrence with ordinary frequency, but the progress was steadily upward. This progress of slow recovery would seem to eliminate any probability that the result was due to suggestion, as has been affirmed; and that the causative factor of her neurotic condition was the incontinence became evident from the fact that the melancholia disappeared as micturition became normal.

The question of the character of the coil to be used is not unimportant. Shall it be the primary

or secondary coil, or if the apparatus is of the continuous coil variety, shall the current selected be from the short and thick or from one of the long and thin windings.

Not only do these manifestations of induction vary in their physical and physiological effects, but therapeutically they are by no means the same.

The action of the secondary current through the high resistance of the skin is one thing; through the low resistance of the mucous membrane it is quite another. Through high resistances currents of high tension act more vigorously on motor and sensory nerves than through low resistances, and conversely, currents of low tension but of increased magnitude or amperage produce greater motor and sensory effects through low than through high resistances. Theoretically, therefore, it seems rational that for the production of a vigorous and satisfactory muscular contraction through mucous membrane, these currents of low tension but appreciable magnitude should be preferred to currents of high tension but of a magnitude altogether negligible; and practically I have found this to be the case.

616 Madison Avenue.

THE TREATMENT OF CONDITIONS RESULTING FROM CHRONIC ANTERIOR URETHRITIS.¹

BY W. D. TRENWITH, M.D.,

OF NEW YORK;

GENITO-URINARY SURGEON TO O. P. D. NEW YORK HOSPITAL.

IN choosing to write of this phase of a very much written of subject, I do so with two very definite objects in view, namely: (1) To bring before you the treatment of a class of cases, too commonly neglected and yet fraught in a great many instances with much real danger to patients and later to their wives, should they marry, with the possibility of still further passing the infection to the children as a gonorrheal vaginitis in the little girls, or as a gonorrheal ophthalmia; and (2) in the hope that more careful attention may be given to those suffering from gonorrhea, to the end that a real cure may be gained.

In my long connection with the Genito-urinary Department of the College of Physicians and Surgeons, and also with the New York Hospital, I have seen only too many cases of neglect in treatment among those patients who applied for relief from genito-urinary troubles, in many instances traceable to the fact that they had long considered themselves well, the idea being perhaps fostered by some physician, because no discharge was to be seen.

In the study of a series of cases of vaginitis in little girls, under my care at the Vanderbilt Clinic, the results of which I hope soon to embody in a paper, the infection from gonococci was traced through the mother to the father in

¹ Read before the West End Medical Society, New York, September 23, 1905; and by invitation, before the Passaic City Medical Society, of Passaic, N. J., October 12, 1905.

about 60 per cent. of the cases. Moreover, a gynecologist of some note recently reported 66 per cent. of his work as resulting from gonorrheal infection.

In view of these facts I am disposed to consider the matter of more than minor importance, and so write, hoping that I may help in some small measure toward the prevention of the spread of this really dread disease among those who are innocent and helpless.

The symptomatology of the cases under discussion is a rather varied one; most frequently, however, the patient presents himself complaining of a glueing together of the lips of the meatus during the night, most noticeable, therefore, in the morning; or a slight mucopurulent discharge constantly present day and night; or of a feeling as if a drop of urine were passing from him long after the act of urination; or of a forking or twisting of the stream of urine, and perhaps of straining in passing it, and of lack of force in the stream itself; or of a burning sensation situated at various points along the penis; or perhaps he notices a discharge or has trouble only after a drinking bout or after excessive sexual indulgence.

In many cases the condition is one which has long remained dormant, the result, however, of some earlier infection of the urethra, improperly treated, or considered cured as soon as the discharge disappeared, or perhaps neglected entirely; other cases are but the extension of a recent acute condition into a chronic one.

We have therefore to do, not necessarily with a gonorrheal process *per se*, but with one due to the inflammation caused by the gonococci, from which the gonococci, however, have usually disappeared. And if the urethritis be due to the gonococci, which in almost all cases it is, the danger lies in the fact that, though it is not possible to demonstrate the gonococci in many cases, they may still nevertheless be present, awaiting only new soil to grow upon, or perhaps, upon provocation, to reinfect the patient himself.

The resulting condition is an indolent, relaxed, catarrhal condition of the membrane, or a hyperplasia of portions of the urethra, or simple erosions, or the production of new connective tissue, forming strictures of various degrees and density with perhaps erosions behind the stricture, or infected follicles which furnish a constant source of irritation by the discharges coming from them.

Here, then, we have an array of conditions somewhat appalling, did they all ordinarily occur in the same patient; happily, however, we are not often called upon to treat more than two or three of the conditions named in conjunction.

I deem it most essential that by every means at our disposal we try to determine the exact status of the case. It seems to me that too much emphasis is laid upon the discharge alone,

and too little upon the conditions which cause the discharge.

The urine should always be examined at each visit, to note the amount and character of the detritus in the form of pus, shreds, threads, epithelium and mucus which it may contain, and also to gain some idea as to the progress which the case is making. The patient should therefore be trained always to come to the office with his bladder sufficiently filled with urine to be able to pass a specimen into the examining tubes or glasses.

The urethra should be examined at the first visit with the bougie à boule to ascertain the size, location, and number of strictures, if any, or any thickened or painful spots. The endoscope, too, can be used where strictures are not present, for the purpose of ascertaining by direct vision the exact character, location and degree of inflammation present, and the situation of any infected follicles.

As a routine measure I advocate the examination of the prostate and seminal vesicles. If they are in any way diseased, appropriate treatment should of course be instituted, but the scope of this paper being limited, I shall not deal further with the diseases or treatment of those organs.

From the use of the above procedures, together with the patient's history, we can make an exact diagnosis, and bring many cases to prompt cure because the attention will be entirely directed to the diseased area.

Before instrumentation of any kind, it is well always to sterilize the meatus as far as possible, washing it off with water and tr. green soap, and after with a solution of either carbolic acid or corrosive sublimate. All instruments should of course be sterilized before using.

If a stricture be present and not fibrous, situated in Region I of the urethra, olivary bougies should be at first passed, and the size gradually increased until No. 20 French is reached, when the curved steel sound may be substituted for the bougie. The bougies and sounds are passed once in from five to seven days, not oftener, and left in for five or ten minutes; the size increased, as the case will allow, until No. 30 French is reached.

This size is passed for a few weeks at intervals of seven days, then at intervals of two weeks, then a month, two months and so on until the patient reports about twice a year, to see that his improved condition is maintained.

After the passing of each bougie or sound, it is well either to irrigate the urethra with a solution of 1-8,000 silver nitrate, or to instil a few drops of 1-125 solution of silver nitrate at the site of the stricture; and as a precautionary measure against infection, it is my custom to give some urinary antiseptic such as urotropin gr. viiss or boric acid gr. v two hours after meals for a couple of days after.

Should the stricture be situated in Region II or III, straight steel sounds may be used in-

stead of curved, the treatment otherwise to be the same. Should the stricture be fibrous and not yield to gradual dilatation by the use of bougies and sounds, either internal or external urethrotomy is indicated, according to the requirements of the case. It is not my purpose, however, to go into details of the operation for stricture, beyond saying this, that it is most essential to remember that the operation itself is but the first step, so to speak, in the cure of the condition; sounds must be passed frequently, and for quite a period after the operation, to insure that the canal remain open; otherwise the resultant condition is several degrees worse than the primary one.

We pass, then, from the consideration of the conditions involving new connective tissue to those involving hyperplastic conditions, and indolent, relaxed conditions giving rise to catarrhal symptoms of more or less severity. These conditions have always seemed to me to be very much less amenable to treatment, more liable to recurrence, and more of a tax upon the patience of the patient and the physician.

The endoscope here is of the utmost value for purposes of diagnosis and treatment, though not suitable in every case for treatment.

Having determined that no stricture is present, and the endoscope showing us areas and patches along the urethra, usually involving the region of the bulb, and immediately anterior to it, of infiltrated, boggy membrane, hyperemic and easily bleeding, sounds of medium size—say about No. 25 French, and not increasing in size—should be passed every third or fourth day; In many instances the old psycrophore, now fallen largely into disuse, with a current of ice-water, may be used with great advantage.

In the earlier stage of treatment, I prefer to introduce eight ounces of a solution of silver nitrate, in the strength of 1-16,000 to 1-8,000, or Ultzmann's solution, diluted twice or three times, into the bladder after the use of the sound and allow patient to pass this immediately, thus distending the urethra naturally and at the same time medicating it.

Later, when the condition is somewhat relieved, the instillation of small quantities of the solution of silver nitrate 1-2,000 to 1-125 is productive of much improvement.

The instruments necessary for proper instillation are a soft rubber catheter No. 12 to 15 Fr. and a syringe, with a capacity of one or two drachms, with either the piston or barrel of the syringe, if glass, graduated in minims or drops, and with a long, sharp nozzle for insertion into the catheter. To instil, the catheter is lubricated with glycerin or chondrus jelly, and passed gently back to the triangular ligament, which will slightly resist its further introduction, the syringe, being filled with the desired solution, is then joined to the catheter, and the fluid is instilled gradually as the catheter is at the same time slowly withdrawn.

It is well usually to begin with a solution of silver nitrate 1-2,000 and gradually increase in strength thus: 1-1,000, 1-500, 1-250, up to 1-125, being governed by the amount of reaction caused, and the benefit derived as ascertained by the amount and character of discharge, if any, and of the amount and character of the detritus in the urine.

An instillation may be given every second or third day, watching carefully the reaction. No fixed rule can be given as to when to increase the strength of the solutions used; each case presents problems peculiar to itself, and the treatment must be ordered accordingly. The stronger the solution of silver used, the less should be instilled, one or two drams of the 1-2,000 strength; not more than five to ten drops of the 1-125 strength.

At times the end may be hastened by applying to the hyperplastic area, through the endoscope, stronger solutions of silver by means of small swabs, or with a small, fine spray of my own device.

For home use the patients have but simple things to use, morning and evening injecting several syringefuls of as hot a normal salt solution as can be borne, each injection to be retained perhaps half a minute; the heat has a wonderfully soothing, healing effect, as also to drive away the unnecessary blood from the part.

Injections of zinc sulph. and alum, of each two to six grains to the ounce of water, may be used twice or three times a day, being retained for one or two minutes. Injections should, of course, be used only after first urinating.

The endoscope oftentimes reveals to us very small and limited patches of thickened or eroded membrane. Such conditions are best treated through the endoscope, with solutions of silver in strengths of 5, 10, or 20 per cent. applied directly to the diseased area by means of small swabs.

Lugol's solution may sometimes be used with benefit, especially in small ulcerated areas, and 1 to 10 or 20 per cent. of ichthyol in water or glycerin is very valuable in those conditions where the membrane has become simply thickened.

Treatment should be used every fourth or fifth day; many of these cases can be satisfactorily and efficiently treated in this and in no other way.

Infected follicles are also to be destroyed through the endoscope by means of the galvanocautery, or by the use of acids, though the latter are mentioned only to be condemned.

A cure may be said to have been effected when there is no longer any discharge, and the urine, upon examination, is free from pus, shreds, or threads and remains so. Frequently a small amount of mucus is found in the specimen passed; this may be readily recognized by the fact that it floats to the top of the urine and is soon dissolved.

When several examinations reveal nothing more than this, except it be in excessive amount, I believe it best to discontinue local treatment, and try only to improve the physical condition of the patient, when it will usually disappear of itself.

Occasionally a patient presents himself with such a sensitive urethra that it is almost impossible to treat him in any way. Under such conditions the treatment may be carried out by first cocainizing the urethra with a 2 or 4 per cent. solution of cocaine; better, however, is the use of a solution of ichthyol as an irrigation, beginning with about ten drops of ichthyol to eight ounces of water, gradually increasing the strength at each visit until the sensitiveness disappears, when treatment along regular lines can be taken up.

I have purposely left until now speaking of drugs to be used internally and of diet. As regards drugs, it is to be remembered that the long-continued taking of the balsamics may themselves cause a moderate discharge, which will disappear when they are discontinued. On the other hand, where they have not been taken, a discharge may be stopped oftentimes almost at once by their use, santal oil in doses of $\mathfrak{M}\mathfrak{v}$ or $\mathfrak{x}$, three times a day, two hours after meals, with half a glassful of water, will cause usually the least disturbance of the stomach; copaiba and cubebs are also of use at times when patients cannot take santal oil. If the stomach is disturbed, a dram or two of the essence of pepsin may be taken in the water with the capsules.

In other cases it seems desirable to keep the urine antiseptic, and for this purpose boric acid gr. v, or urotropin gr. viiss, are to be given two hours after meals in plenty of water; to these may be added tinct. hyoscyamus $\mathfrak{M}\mathfrak{v}$ to $\mathfrak{xv}$, if there is a sensation of burning along the urethra.

As to diet, it should be of a good and wholesome character. The patient must no longer in the early stage, only the best foods, salads, and light condiments and light desserts are to be taken. In fact, he should be encouraged to eat and to keep himself just as perfectly in good condition as possible, for I am convinced that many a patient's condition remains stationary or improves but slowly, because of a "low" state of his system, and our neglect of his physical, so that the parts will not respond to our attempts to treat the disease, and to further this end tonics of cod liver oil, strychnine, or liver oil, or cod liver oil, supplemented by sufficient exercise, diet, and pure air, must be employed. The question of drinking, and of the malt liquors, wines, and brandy, is particularly perplexing. I do not believe in the taking of any of these in large amounts.

The question of the use of the apparatus is to be decided, and will retard the cure.

In conclusion I wish to emphasize the following points:

1. The necessity of an exact diagnosis of the underlying conditions.

2. That all remedial measures used, whether internally or locally, should be governed by the reaction caused, and each forward step in the treatment taken only when the conditions warrant it.

3. That all treatment of the urethra be of the gentlest, remembering always that one of the most delicate membranes in the body is under treatment.

4. That attention to the general physical condition of the patient is often of as much importance in gaining a cure as the local treatment.

5. That the urine should be examined at each visit.

6. That no physician should be satisfied to call a patient cured simply because the discharge has ceased, and without an examination of the urine.

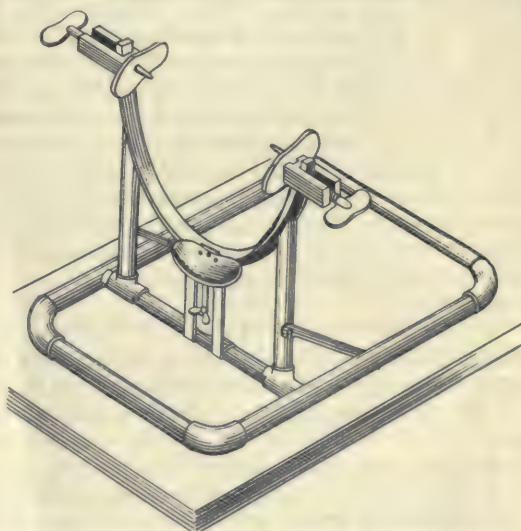
7. That the profession at large ought to begin to view this disease with a little less complacency, and to treat it in a spirit more in keeping with its serious nature.

AN IMPROVED HEAD-HOLDER FOR THE REMOVAL OF THE HUMAN BRAIN.

BY BERT B. STROUD, M.D.,

OF ITHACA, N. Y.

THE inconvenience attending the removal of the human brain and the frequent injury to the more delicate structures of the brain itself, when the usual method is employed, have led the writer to devise the apparatus described below. It is the

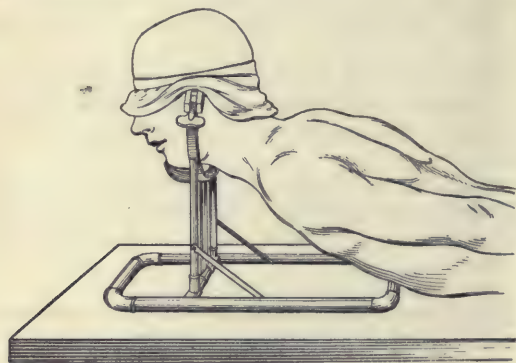


This illustration shows a general view of the apparatus in isometric perspective. Figure 2 shows it in use. The scalp has been reflected and the circular cut in the cranium made.

result of a long experience in the removal of brains for anatomical study. A modified form of this apparatus for use at necropsies, where both brain and thoracic and abdominal viscera are

to be examined at the same time, is in preparation.

The apparatus consists of a base made of steel tubing, to which is joined a movable upright that can be fixed rigidly at right angles to the base. The upright bears movable jaws to grasp the head upon each side and spurs to enter the auditory meatuses; also an adjustable support for the chin. The head is held firmly and both of the operator's hands are free. The apparatus is finished in white enamel and nickel; when not in use it folds flat, so that it occupies little room. I wish to thank Messrs. Geo. Tiemann & Co., New York City, for the superior manner in which they constructed the apparatus.



The subject lies upon the belly, the head being supported and firmly held by the adjustable clamps at the sides and chin. The base of the cranium is horizontal, and serves as a shallow tray in which the brain is supported while the cranial nerves, arteries, spinal cord and membranes are being severed. Thus it is possible to secure a perfect anatomical specimen. The cranium is opened by making a circular cut with the saw about one-half inch above the orbital prominence and the external occipital protuberance. The calvarium is removed either entire or in two pieces by making a second sagittal cut, about one-half inch from the median line over the top of the head to meet the horizontal line. Adhesions between the calvarium and dura are separated by means of a long flexible spatula.

A LIQUID FOR THE PRESERVATION OF BRAINS.

Saline Alcohol.—The following liquid has been employed by the writer for a number of years to preserve brains, and has given excellent results:

R Sodium acetate—400 grams.....	314
Sodium chloride—350 grams.....	312½
Formaldehyde 40 per cent.—60 c.c.....	fl. 32
Alcohol 95 per cent.—1400 c.c.....	fl. 347
Water—1600 c.c.....	fl. 354

Dissolve the sodium acetate and sodium chloride in fifty-four ounces of water by aid of heat. Filter and cool, then add forty-seven ounces of ninety-five per cent. alcohol and two ounces of formaldehyde. This quantity is sufficient for one human brain. If the specimen is much

stained by hemorrhage, the blood may be removed by soaking for a few hours in a solution of salt and water. Ordinarily this treatment will not be required. Brains should remain in the solution ten to fifteen days; but a longer period is not harmful. Then they may be put into 75 per cent. alcohol, which should be changed once or twice. They may remain indefinitely in 75 per cent. alcohol, or preferably be put into 82 per cent. alcohol.

The advantages claimed for this solution are: (1) The mixture is simple and may be prepared at a moderate cost, about 14 cents per liter, alcohol free of tax. (2) It has about the same specific gravity as that of the brain, which should float without support midway between the top of the liquid and the bottom of the jar. Rarely a brain may sink to the bottom; in this case add more salt. If it floats on the top, add 50 per cent. alcohol until it sinks below the surface. (3) The specimens have a more natural appearance than when some other preservatives are employed. (4) There is no distortion. (5) It appears to give good results for brains which are very soft from decomposition. In these cases the pia cannot be easily removed. (6) Plexuses and membranous parieties are preserved. (7) The alba and cinerea are visibly differentiated. (8) Brains are moderately flexible, so that fissures may be explored. (9) Tissue hardened in it may be used for histologic study.

But, of course, special methods should be employed for exact cytologic work. With Mallory's hematoxylin (see *Anat. Anzeiger*, 1891, VI., S. 375) results have been obtained which, in some respects, excel those obtained by the Golgi method. The cell processes are stained, and some idea of cell structure can be determined. Besides the possibility that certain varicosities, which may be seen on some of the cell processes, are artefacts due to the Golgi method, is eliminated. For ordinary class demonstrations specimens prepared in this manner form a valuable adjunct to Golgi preparations.

SYPHILITIC FEVER.

BY JOHN A. MCKENNA, M.D.,
OF PHILADELPHIA;

ASSISTANT SURGEON, MEDICO-CHIRURGICAL HOSPITAL.

THE varied symptoms which cloud the diagnosis of syphilitic fever and make its recognition difficult, may be ascribed to so many of the febrile diseases that the failure of the physician at once to classify properly a case in which syphilis is the cause, is both natural and pardonable.

Upon the writer's return in August from the Portland meeting of the American Medical Association, there was transferred to him a case of "typhoid fever" in a child of nine years, who had been sick for three weeks with a low grade fever, capricious in its rise and decline, but always higher in the evening than in the morning. Upon this fact—and a dry, coated tongue—had

the physician, who was called to see the case in my absence, based his diagnosis.

The child, a little girl, did present an almost typical typhoidal appearance at a casual examination, but while looking at the tongue, I noticed the striking picture which the teeth presented of probable inherited specific disease. Taking this hint in conjunction with the "bone pains" in the shins and forehead, I put the child on iodide of potash, gr. ii and bichloride of mercury gr. $\frac{1}{80}$, every four hours, and was gratified to note within sixteen hours an amelioration of the symptoms with a drop in temperature of more than a degree.

The temperature for the three weeks of the child's illness previous to my entrance into the case ran from 99.2° to 100.4° F. in the morning to 101.2° to 102.2° F. in the evening, with a pulse rate varying, independent of the temperature, from 98° to 124° . No spots had been found upon the body, nor iliac tenderness, nor enlargement of the spleen, but at my initial examination the liver was noticeably enlarged and tender. The girl was dull, apathetic and peevish, and lay almost always in a stuporous condition, except when roused for food or medicine.

Five days administration of mixed treatment brought the temperature and pulse to normal and all pains in the legs and head left within a week. The hepatic tenderness has disappeared, and the enlargement at the present time (Dec. 1) is much less marked. The child is gaining flesh rapidly and the lassitude which characterized her moments for two months before her illness has been replaced by a lively, energetic disposition.

Parental history in this instance is negative. Neither mother or father shows any cutaneous lesions of an old syphilis and neither has had a primary sore that he or she knows of or will admit. The father tells me that when a boy his father had a necrosis of the tibia which the elder Pancoast operated on. This is absolutely the only clue to the existence of the disease in a previous generation, and but for the discovery of the Hutchinsonian sign in the child, the diagnosis of "typhoid fever" might have remained endorsed and followed.

It is the opinion of the writer that if evidences of syphilis were more often looked for in continued fevers of a doubtful character, or, as a chance, specific treatment given the patient, doubtful diagnosis would frequently be speedily made definite and the health of the patient and the reputation of the physician advanced in a gratifying manner.

Mark Twain's Rules of Health.—"When others drink I like to help; otherwise I remain dry by habit and preference. Since I was seven years old I have seldom taken a dose of medicine and have still seldomer needed one. I have made it a rule never to smoke more than one cigar at a time."

A FEW OBSERVATIONS ON RELAPSING FEVER.

BY DR. KOCH,
OF HONGKONG, CHINA.

RELAPSING fever is a condition that among ourselves (in Hongkong) is not often met with, though it seems common enough in some parts of India, as, e.g., Bombay. It is also, I understand, fairly prevalent in North China, but as far as I am aware is not met with in South China, nor in Hongkong. As a point of fact, these cases, whose history I am about to give you, were, I think, among the first actually seen there.

On January 10, eight patients were sent to the Hospital Hulk Hygeia from the immigrant ship Cranley which was en route to South Africa from Chin-wan-tao. Five of these cases were suffering from smallpox unmistakably. The other three had a high temperature, a quick pulse, intense backache, headache and general aching in the bones and joints, respiration was quickened, tongue dirty. It was thought that these were cases of incipient smallpox. Being, however, the seventh day of illness, and there being no definite evidence of the existence of smallpox, I thought it advisable to examine the blood. Numerous spirilla were found, and no malaria. They ran the usual course, and the spirilla were found every day in the blood, during the persistence of the high temperature.

Course of Cases: Case I.—Fever, seven days; remission, five days; fever, four days; recovery. *Case II.*—Fever, twelve days; no remission; recovery. *Case III.*—Fever, twelve days; remission, three days; sudden death.

I am unable to state exactly that the duration of the primary attack of fever was in each case accurate, because no information was supplied me by the ship authorities, and I had to rely upon the statements of the patients. The temperature in no case rose above 105° F. It was steadily elevated; was practically uninfluenced by antipyretics and quinine; and was slightly modified by sponging (cold), but temporarily. The treatment adopted was the administration of ordinary diaphoretics—antipyretics and quinine were tried, but without effect—and digitalis and strychnine were given as required.

The patient that succumbed suffered slightly from chronic bronchitis. He had passed through twelve days of fever, and was in the third day of his remission. He seemed to be doing well, was quite cheerful and lively, and ate a hearty breakfast; soon after that he succumbed to heart failure. His heart was slightly dilated, and its action irregular. On post-mortem examination no spirilla could be found in any of the organs or in the blood of the heart, which was found to be dilated, and there was evidence of chronic bronchitis. The spleen was enlarged and firm; the liver showed fine cirrhosis.

General Symptoms.—The high temperature, accompanied by severe backache and headache

and pains in the limbs and joints were most noticeable; the tongue became coated with a brownish fur, thick and moist at first, but becoming blackish and dry before the approach of the crisis, and beginning to clear immediately after. The pulse was quick, and tended to be dicrotic. About twenty hours before the crisis the respiration became much affected and was oppressive—was of a sighing nature—and the patient had an anxious expression, but this quickly subsided as soon as the crisis was past. The spleen was enlarged and tender, and the liver tender. The skin even in the Chinese was noticeably yellow, as was also the conjunctiva. The symptoms otherwise called for no particular comment, and were such as usually accompany elevation of temperature.

An important sequel in connection with these three cases occurred. Two cases remitted on January 14, the third on January 24; the office boy of the hospital, who saw the patients frequently and helped to coax mosquitoes to feed on them, but who never nursed them, was suddenly taken ill on January 30. He was a known malarial subject, and I had no reason to suspect that this attack was other than a malarial attack. His blood showed spirilla, and he passed through a typical attack of relapsing fever of a very severe nature. His fever fell on the sixth day; the remission lasted five days, and the relapse ten days. He complained of severe backache and headache; his tongue was very foul and flabby. Before the second crisis he suffered great distress of breathing and had a lively fear of impending death. Then the crisis occurred, and he got better. During his relapse, however, his condition was very serious. His tongue was foul, and the backache was severe. He had constipation at first, and later he developed a peculiar mental state; he was first apathetic, and then remained in a state of unconsciousness from which he could be aroused at intervals. Then diarrhea supervened. He was unable to restrain his motions, and his excreta were passed under him. The next day he became deeply unconscious and continued so for three days. During this time the blood, on examination, showed no spirilla, and the urine, which was centrifugalized, also showed no spirilla. He ultimately recovered.

These cases are interesting not only because relapsing fever is rare with us in Hongkong, in spite of the fact that in the North of China it is common, but also because the fourth case shows how easily and rapidly it is transmissible, and I venture to think points to a possible mode of transmission. The office boy used to assist in getting films of blood and in catching mosquitoes and trying to get them to feed on the patient. He never went near the patients at any other time, nor did he help in nursing them, yet he suddenly developed the disease.

The *Spirillum Obermeieri* is too well known

to require description. It is an organism of varying length, about 30 microns usually; is wavy on staining, and when seen alive is very active. Its movements are of a spiral nature, or of a lashing and sinuous kind. It is very transparent, and to be seen living requires a darkened stage. Its ends are pointed, and its substance stains uniformly. As to its nature, Schaudinn shows that the *Spirochæta Ziemanni* is a phase of a trypanosome, that it has a large nucleus and a micronucleus or blepharoplast, neither of which is present in a bacterial spirillum, and further that it alters its shape. He judges from analogy that the *S. Obermeieri* is a protozoan parasite and a phase of trypanosome. It is said to have cilia. Its mobility may be preserved for 30 to 130 days. It cannot be cultivated. Its presence in the blood is noticeable during the time the temperature keeps up, but its variation in number from time to time do not bear any relation to the elevation of temperature, although there is progressive increase till about twenty hours before crisis. As soon, however, as the temperature falls, no more spirilla can be found in the peripheral blood. What happens to them? Metchnikoff has shown that they are gathered in the spleen where they are destroyed by the microphages and macrophages, and this has been confirmed by the fact that monkeys, into whom relapsing fever blood was injected and in whom the spirilla were found in the peripheral blood, showed none after the crisis in the peripheral blood if the spleen was present, but abundance when the spleen was extirpated. It would then seem that the spleen was chiefly concerned in their destruction. On the other hand, Gabritchevsky states that bactericidal substances appear at certain determinate periods in the blood, and that then the spirilla are got rid of. The following experiments lead him to this conclusion:

1. To blood containing the spirochætæ he added blood taken immediately after a paroxysm—and the result was that the spirochætæ became immobile, changed form, and died.

2. To blood containing spirochætæ he added normal serum, and the spirochætæ lived from two to four days.

3. Preventive inoculation with serum of a convalescent case was effective to a certain extent.

The spirochætæ are not found in the blood of a patient who dies of relapsing fever, except in very rare cases. In my own case I could find nothing. What happens when they disappear, and where do they disappear? I grew them for eleven days in a solution of normal saline at a temperature of 37° C. They did not apparently increase in numbers, but they lived. On the twelfth day hemolysis set in, and on the thirteenth day only granular debris could be found on examination. Hence I conclude there is some bactericidal action of the blood which is produced as an antibody is, probably as a result of

some secretion of poison by these spirilla, and that in consequence they disintegrate, but without the accompaniment of hemolysis in the human body.

Method of Conveyance.—Bedbugs are reported to have conveyed infection to monkeys. Judging from analogy with malaria and filarial diseases, it seems quite possible, and I think I may say probable, that the spirillum is taken up by the mosquito and passed on. I have examined some mosquitoes twenty-four to thirty-six hours after allowing them to feed on two patients, but was not successful in finding spirilla in the blood. However, the question arises whether there might not be some early form in the human blood which we have not been able to recognize as yet. This idea is suggested by an experiment I made in which I injected a monkey with 2 c.c. blood from the patient that died, taken the day after the remission, which was the day before death. Examination showed no spirilla in this blood. The monkey showed no rise of temperature, but suddenly died in seventeen days. On examination of spleen, liver, heart-blood and lungs, numerous spirilla were found. Here it is worth notice that no spirilla were present in the injected blood, and none were seen in the examinations of the monkey, about the fifth and sixth days. But death supervened, and large numbers were found in the organs. It is quite consistent to consider that the spirillum exists in some form during one stage of its existence which we have not yet recognized.

I may also state that I scarified two monkeys and fed one pig with spleen, in which the spirilla were abundant; this had no result; no spirilla were recovered from the blood, nor were there any signs otherwise of their presence. Perhaps this would point to the correctness of Schaudinn's assertion that it is a protozoal organism.

I inoculated two rabbits with blood removed during the febrile period, which abounded with spirilla. No results followed. The blood remained free. It is, of course, known that monkeys are the only susceptible animals.

Period of Incubation.—In the office-worker's case it was not more than six or seven days; in three monkeys which I injected it was about four days. An extreme of 126 hours has been given, but it may be longer as in the above cases.

An important symptom is to be noted in the case of the office boy—namely, that for about three days he remained quite unconscious, and that examination of the blood showed the absence of spirilla. It appears to me that it is not improbable that they formed emboli in the small capillaries of the brain, especially as the unconsciousness came on fairly suddenly, and so were withdrawn from the peripheral blood.

Treatment.—The administration of carbolic acid in large doses was tried in Case IV, when there were brain symptoms. It is stated that 1 per 1,000 kills the spirilla. Therefore, as it is

known that carbolic acid enters the blood unchanged, gr. x every two hours were given. The patient recovered. He made a steady change for the better after the administration was commenced, but whether this was *post hoc* or *propter hoc* I am unable with this one case to say.

MEDICAL PROGRESS.

MEDICINE.

Water Supply and Sewage Disposal.—G. W. FULLER (*Journal A. M. A.*, Oct. 7) discusses the proposed use of copper sulphate for water purification. Its value as an algicide seems to be well attested, but its effect on drinking water is not yet fully determined, and a prudent course at the present time would be to keep water thus treated from use for such purpose. The quantity required for germicidal purposes is much greater than that for destroying algae, and this makes its use for drinking still less expedient till we have more trustworthy data as to its effects. The use of copper sulphate as a germicide for the effluents of coarse drain sewage filters is mentioned, but the process is an expensive one. The data regarding its use in connection with filtration are not yet sufficient. Altogether a judicious conservatism is advisable as regards copper sulphate. The extent of filtration works in the United States is next noted, and it appears that in the last four years there has been an increase of 70 per cent. in the population supplied with filtered water and a prospect of a still greater increase in the near future. The use of sulphate of iron and lime in treating the St. Louis water supply is mentioned, but it is not considered an altogether satisfactory substitute for filtration. The softening works at Columbus, Ohio, are also commented on as the first instance of a large city using this method in this country. Recent legislative measures in Pennsylvania and New York looking toward the control of water supplies are mentioned with approval. The latter part of the article is devoted to sewage disposal, and the conclusion is reached that intermittent sand filters, when available, are the most satisfactory. Coarse-grained filters and sprinkling filters are more or less effective and septic treatment is ordinarily helpful as a preparatory measure. The article concludes with a brief notice of sewage pollution of shellfish and its remedies.

Diagnosis of Gastric Conditions.—GEORGE DOCK (*Journal A. M. A.*, November 4) remarks that instrumental and laboratory methods are too much neglected in gastric diagnosis, and that the difficulties are overestimated. The failure to find absolute diagnostic signs, as in the case of the limitations of the HCl absence test in cancer, has perhaps also been discouraging to some. He points out the value of the HCl tests, not only in cancer and gastric ulcer, but in functional disorders, and with repeated examinations. Still further tests, nevertheless, are of great value, and he enumerates those of special usefulness to the general practitioner. For the primary reaction litmus should be used, and for presence or absence of free HCl. Congo paper or solution may follow; though this can be dispensed with. The more accurate and delicate Guenzburg reagent should always be used, and he does not understand its frequent neglect. The tendency of the solution to decompose, he admits, is a drawback, but it is so easy to test the solution with a drop of dilute HCl that this fault is a trifling one. Given free HCl, its amount is to be determined, and for this the dimethyl-amidoazo ben-

zole is most satisfactory, though practice is required to get the proper end reaction. For the total acidity the phenolphthalein reaction is used. With free HCl, tests for combined HCl are not needed in ordinary clinical work. If there is no free HCl the qualitative Sjoquist test should be used. Quantitative estimations of combined HCl are not needed in clinical work, and require too much chemical experience. With proper apparatus and reagents, any one can learn to estimate HCl sufficiently for diagnosis, and the quantitative tests can often be omitted. Of abnormal acids lactic acid is the only one requiring chemical tests; acetic and butyric acids can be detected by their odors when present in quantity. To be most useful, lactic acid tests should be made on a lactic-free test meal, such as shredded wheat or the Boas gruel. Quantitative methods are not required, as the relative intensity of the Uffelmann or Kelling tests gives sufficient indices. Pepsin determination is not needed in ordinary work, as it is rarely absent with the presence of HCl in sufficient quantities. The existence of the digestive functions and their completeness can be easily shown by the biuret and starch tests, and by the changes in the cells of the gastric contents as shown by the microscope. Some of the functional tests proposed by Stahl, however, may prove valuable aids in diagnosis. Chemical tests alone are of little value; they must be supplemented by others learned by practical observation and experience. One quickly learns the normal limits as regards color, consistency, odor, etc., and from these the need of further examinations becomes quickly known. Mucus is readily recognized, but it may have been swallowed; blood in large amount is also easy to see, and small amounts due to friction with the end of the tube are usually recognized with ease. The tests for occult blood are of considerable clinical value, but trauma must, of course, be excluded. Pus is always of importance, but it also may come from the respiratory tract. Microscopic examination of bits of mucosa and of bacteria, Döck things, have but a limited value. The presence of large numbers of bacteria may throw light on the question of stagnation, and certain variations of the flora may aid diagnosis. In conclusion he says that examination of the gastric contents cannot be neglected without the risk of serious error. It is indicated in all stomach syndromes, in all diseases seriously affecting metabolism and nutrition, and in all that affect the function of the stomach, notably diseases of the lungs, heart, liver, kidneys and blood.

Dilation and Curettement for Dysmenorrhea.—

GERRY R. HOLDEN (*Am. Med.*, Nov. 4, 1905) analyzes reports received from 95 patients at periods varying from one to twelve years after dilation and curettement for dysmenorrhea at the Johns Hopkins Hospital. He finds that 40 per cent. were entirely or very greatly relieved for at least one year, with 7 per cent. out of this 40 per cent. having a recurrence of the dysmenorrhea after one year or more; 30 per cent. had no relief at all, while the remaining 30 per cent. had but slight relief or relief for a few months only. Marked maldevelopment of the pelvic organs was present in 20 cases, and only 25 per cent. of these 20 cases were relieved. From a study of the character of the pains he concludes that the prognosis for relief after dilation and curettement is better when the pains are sharp, begin the day of the flow or the day before, and last but a day or two. The prognosis is bad when pains are dull, begin several days before the flow, and last for several days or throughout the flow. Dysmenorrhea may be caused by lurking pelvic inflammatory disease which is not recognized at pelvic examination under ether. The history

is significant in such cases. In these dilation, and especially curettement, may make the symptoms much worse. Neurasthenia, anemia or malnutrition are frequently present. In some cases such conditions are the cause of the dysmenorrhea. To get good results from the operation these conditions must also be cured. In 61 of the cases a microscopic examination of the curettings was made. Chronic endometritis in such relation as to be a possible cause of the dysmenorrhea was present in but 4 cases, hence Dr. Holden concludes that chronic endometritis is an infrequent cause of dysmenorrhea. As but 3 out of 20 sterile married women of this series in the child-bearing period conceived within a year after the operation, the value of dilation and curettement in relieving sterility does not seem great. In general, the procedure should be limited to cases in which there are no gross pathologic lesions, such as retrodisplacements, inflammatory disease of adnexia, or myomas, to account for the dysmenorrhea.

The Exaltation and Reduction of Blood Coagulability by Therapeutic Measures.—A. E. WRIGHT and W. ERASMUS PARAMORE present the results of a detailed study (*Lancet*, Oct. 14, 1905) of the accelerating or retarding action exerted by certain medicinal agents upon blood coagulation. The effect exerted by calcium chloride and milk were particularly observed, and, in addition, calcium lactate and magnesium carbonate were drawn within the scope of the investigation. The results obtained with calcium chloride show that with a single dose of 60 grains the coagulation time of the blood is reduced and that the full accelerating effect is achieved within the first hour after its administration. In some instances the ratio of reduction was as 1 to 1/4, whereas in others the reduction amounted only to 1 to 6/7. This shows the marked idiosyncrasy displayed by some individuals in the matter of absorption of calcium chloride. In view of this fact it became desirable to obtain an effective substitute. Experiments were undertaken with calcium lactate. The results, as in the case of calcium chloride, were very rapidly manifested. With a single dose of 60 grains the reduction in coagulability achieved is greater than that achieved with the same dose of calcium chloride. It would appear that the more satisfactory results obtained with calcium lactate are due to a readier absorption. The third series of observations relate to the effect produced by the ingestion of magnesium carbonate. As in the foregoing series, a 60-grain dose was administered. The evidence obtained showed that magnesium salts exert an effect which is quite comparable to that of calcium salts. This disclosure is of therapeutic interest in explaining the rationale of the employment of magnesium carbonate in the treatment of urticaria. Finally, experiments were conducted relative to the effect produced upon the blood by the ingestion of milk. It was found not only that the coagulability was increased, but also that it was associated with the presence of large quantities of calcium and magnesium salts. Needless to say, the exhibition of an exclusive milk diet, while of advantage in hemorrhage, aneurysm, physiological albuminuria, and Bright's disease, is prejudicial in many other conditions, predisposing from its excess of salts to thrombosis.

Bilharzia (Schistosoma) Hematobium.—CLAUDE A. SMITH (*Am. Med.*, Oct. 14, 1905) reports seven cases found among the Boers and the South African negroes who were with the Boer War Spectacle at St. Louis during the World's Fair, and who also appeared in Atlanta during March of the present year. Out of 45 specimens of urine examined the eggs of the *Bilharzia hematobium* were found in seven. It was not possible

to examine more than the 45 specimens on account of the short time the company remained in Atlanta, but many other members of the company gave histories indicating that they might harbor the parasite. The seven cases were apparently chronic, as macroscopic inspection did not indicate the presence of any blood clots in the urine. Dr. Smith directs attention to the fact that the eggs are more or less cylindric, one end being bluntly rounded, while the other runs to a point or "spine," and that the egg is not a flattened body, as it appears to be when first viewed under the microscope. A description is given of the anatomy of the embryo and the hatching of the egg, the rupture of the shell apparently being due to the change in specific gravity of the fluid surrounding the egg. In conclusion, the question is raised as to the advisability of permitting such a number of cases of this disease to drift about this country when there is uncertainty as to the possibility of contaminating our streams with this parasite, especially in view of the fact that we have no remedy for this disease.

Aneurism of the Abdominal Aorta.—In conjunction with a full and lucid description of this disease WILLIAM OSLER (*Lancet*, Oct. 14, 1905) tabulates analytically 16 cases. These 16 cases occurred among about 18,000 medical cases admitted to the Johns Hopkins Hospital; however, the incidence varies in different localities. The ratio of abdominal to thoracic aneurism was about 1 to 10. Of the 16 cases, 14 were males and 2 were females, which fact agrees with all statistics. Nine patients were under forty years of age. Seven had been heavy workers. Nine gave a definite history of syphilis; four others doubtful. Ten were alcoholics. In 12 the aneurism was saccular, in three diffuse, and in one dissecting. In two patients the condition was latent. Persistent, agonizing pain was present in thirteen, and is usually the first indication of the trouble, usually being due to pressure upon or stretching of nerves, erosions, or rupture with diffusion of blood. Nausea and vomiting were early and severe symptoms in two cases. Hematemesis was not observed. Constipation was a common feature. Intermittent claudication occurred in one case. The patients were usually well nourished and healthy-looking. Hemorrhage from the bowels occurred in one case. Pressure may lead to dilatation of the stomach or esophagus. The obscurity of the symptoms is universally recognized. Diagnostically, pulsation or throbbing, evident to the eye of the observer, or felt by the patient, is the most obvious feature of the disease, but it is to be borne in mind that abdominal pulsation occurs in other conditions, as nervous or hysterical females or in neurotic or hypochondriacal males, tumors, anemia and aortic insufficiency. A mistake is not likely to occur if it is remembered that no pulsation, however forcible; no thrill, however intense; no bruit, however loud—singly or together—justify the diagnosis of an aneurism of the abdominal aorta, only the presence of a palpable, expansile tumor. Among other causes which may suggest aneurism are regurgitation into the inferior vena cava and a very sclerotic aorta with a thin abdominal wall in old men. So far as treatment is concerned it is not to be expected that much can be accomplished toward a cure. The various medical and surgical measures were applied in this series with an almost universal negative result.

Hemorrhagic Typhoid with Typhoid Parotitis.—B. D. BLACK (*Am. Med.*, Oct. 14, 1905) reports a case, ending in recovery. The patient gave a history of an arrested pulmonary tuberculosis; no hemophilia or syphilis; total abstainer. Hemorrhages occurred about the seventeenth day of illness. Intestinal oozing was

followed by oozing from mouth, throat and nose, hematemesis, hemorrhage from bladder and urinary tract, purpura involving right leg and pressure points on posterior surface of body. Multiple hemorrhages for eleven days. A complicating parotitis seemed to have a marked effect on the hemorrhagic tendency. Medication is unsatisfactory, but saline solution is indispensable, as it renders the typhoid toxins less virulent and fills up the vessels. Camphorated oil as a last resort when other stimulants failed, was given hypodermically, P. R. N., 15 to 30 drops. Its action was satisfactory. The literature on the subject is not exhaustive. This form of typhoid is rare and very little light has been thrown on the etiology by the recent advances made in blood pathology. Tuberculosis cachexia (although not apparent) was possibly a causative factor in the case reported. A review of the literature and study of the case would suggest the following conclusions: (1) The hemorrhagic tendency in typhoid is probably increased by the fairly constant leucopenia which exists in uncomplicated cases. (2) The hemorrhages are usually by diapedesis in this form of typhoid. (3) As a result of the bacilemia, toxemia or both, a degeneration of the intima of the vessels takes place, a pathologic permeability of the vessel wall resulting. (4) The development of an acute inflammatory process (in this case a parotitis), with resulting leukocytosis, has a decided effect on the hemorrhagic tendency.

Pulmonary Atelectasis in Adults.—Contrary to what is usually taught and believed, WILLIAM R. HUGGARD claims (*Brit. Med. Jour.*, Oct. 14, 1905) that atelectasis in adults is extremely common at the apex. In order to elicit the physical signs of this condition a change in the orthodox order of examination is indispensable, since the deep breathing demanded during inspection clears away or diminishes the evidence sought. This is shown by the fact that if percussion is employed before and after deep breathing dulness will often be observed over the apex of the lung at the first percussion, whereas a clear note is elicited at the second. The usual physical signs in this form of atelectasis are dulness, with feeble breath sounds, the dulness diminishing or passing off after a few breaths, the breath sounds at the same time becoming more distinct. A few stick râles can often be heard toward the end of the first few deep breaths, but they gradually get fainter, and then disappear. Most frequently pulmonary atelectasis is found, first, from the apex to the second interspace in front; next, the suprascapular, and then the interscapular region. The treatment of the condition *per se* is systematic deep breathing and exercise.

Professional Responsibility in the Care and Diagnosis of Insanity.—ARTHUR C. BRUSH (*Am. Med.*, Oct. 14, 1905) emphasizes the fact that it is becoming more and more imperative for the physician to detect abnormal mental processes in the young and to advise proper mental and physical means for their correction. He must be particularly conscientious in advising the family when restraint by means of commitment as an insane person is necessary, or when a committee is necessary to take charge of the affairs of a person incapable of managing either through insanity or other causes.

Confusional Insanity. L. D. H. BAUGH brings forward some clinical facts (*Brit. Med. Jour.*, Oct. 14, 1905) bearing upon the confusional insanities accompanying or following toxic causes, such as sepsis, fevers, alcohol, the puerperium and lactation. The observations are based upon a series of 47 cases. The mental symptoms are a purposeless resistiveness, confusion, absence of emotion, and a facial expression of embarrassment. The physical symptoms are cutaneous vasomotor

changes, leucocytosis, the presence of indoxyl in the urine, and symptoms proper to the physical ailment. Resistiveness, confusion and expression of embarrassment were present in all 47 cases. Emotion was absent in 32 of the 47 and in the remaining 15 was only occasionally present, and then merely for short periods. In 33 cases in which a count was made a leucocytosis of over 9,000 was present in 24. Indoxyl was tested for in 19 cases only, and in all these was present in excess. Persistent pallor unaccompanied by any changes in the erythrocytes was present in 23 cases, and in 20 of the 23 the skin was dry and rough. Twenty-four cases showed a persistent flush; in 15 of these the skin was dry, and in 9 moist. The relationship of such physical and mental conditions ought to be regarded as the phenomena of cause and effect. Points to be particularly noted are: (1) The leucocytosis present in the majority of cases examined is indicative of toxemia. (2) The marked presence of indoxyl in the urine is proof of putrefactive absorption from the intestinal tract, and is an evidence of auto-intoxication. In the majority of cases the toxins act on hereditarily predisposed nervous systems. This, it appears, is brought about in one of three ways, viz., (1) directly through the blood or lymph channels; (2) more indirectly, probably through auto-intoxication; (3) still more indirectly, where nerve changes appear secondary to arterial changes.

Frequency and Etiology of Acute Non-Tuberculous Pneumonia in a General Hospital.—WILLIAM TRAVIS HOWARD, JR. (*Am. Med.*, Oct. 28, 1905) based his study upon a series of 550 consecutive autopsies, which cover a period of about seven years. All doubtful cases and all cases of simple bronchitis are excluded. The diagnosis in every case is based upon microscopic as well as macroscopic examination. The pneumonias are classified according to the usual custom into croupous or lobar, and broncho or lobular. The 550 consecutive autopsies furnish 195 instances of acute non-tuberculous pneumonia, an incidence of 35 per cent. to 45 per cent. Of these cases, 76, or about 61 per cent., occurred in individuals with acute infectious processes. Of 43 autopsies in typhoid fever cases in this series, 22 had bronchopneumonia and 5 croupous pneumonia. Of 81 cases of peritonitis from all causes, 36, or 44 per cent., had pneumonia. The article contains a number of tables explanatory of the various bacteria present and the diseases in which they occurred.

Mode of Infection in Uncinariasis.—An interesting experiment, proving how the uncinaria may gain access to the human body, has been made by C. A. SMITH (*Jour. Am. Med. Ass'n.*, Oct. 14, 1905). A small amount of sterilized soil was mixed with infected feces and then applied to the arm of a patient. The first applications were negative, but after eight days, when all the larvae had been hatched, a decided dermatitis, with swelling of the entire arm and hand appeared. The feces were examined regularly after this, and by the middle of the sixth week the eggs of uncinaria were found. There can thus be no question that the disease may and probably very often is contracted through the skin. Infection with the finger nails was impossible in this case, since the eruption was always carefully bandaged.

A Philippine Fever.—Two cases of a somewhat temporary febrile affection suggesting typhoid or malaria and the discovery of a peculiar organism associated with it are reported by H. D. BLOOMBERGH and J. MORGAN COFFIN, assistant surgeons U. S. A. (*Journal A. M. A.*, Oct. 28). The fever was accompanied with general malaise, and in one of the cases with marked muscular pains. It started with chills, but sweats were lacking. The organism was found in the red blood cells. It is

a motile hemocytobion, approximately 2.5 microns long, 1 micron broad, unpigmented, and refractive, like the malarial parasite. Its movements are of two kinds, the first depending on its rotation on one or other of its two axes, and the other in independent movement from one position to another within the cell. The motion ceased after several hours observation and in specimens kept over night a few narrow ring-shaped bodies were found. This parasite was probably first described by Asst. Surgeon H. M. Smith, U. S. A. (Surgeon General's Report, 1904), and the reason it has not been more generally recognized in the peculiar transient fever that occurs in some portions of the Philippines without the presence of the malarial parasite, is its small number in the blood. Smith's cases were reported under the head of estivomalarial fever, though he remarks on the peculiarities of the organism and its possible distinctness.

OBSTETRICS AND GYNECOLOGY.

Toxemia of Pregnancy with Vomiting.—The closer investigations of the symptoms, course and pathological lesions of eclampsia and hyperemesis gravidarum, has shown that they have a common origin in a state of intoxication, always accompanied by functional incapacity of the liver. To this hepatotoxemia is ascribed hyperemesis gravidarum, puerperal neuritis, eclamptic toxemia and perhaps gestatory psychoses. It is also believed that gastric disorders, headache, certain skin lesions and other minor disturbances of pregnancy may be referred to a similar source. E. McDONALD (*Am. Jour. Obstet.*, September, 1905) has made an extensive review of the literature on this subject to show (1) the identity of the liver lesions of toxemia of pregnancy with vomitic and eclamptic toxemia, and for comparison of these lesions with those of experimental liver necrosis; (2) the frequency with which acute yellow atrophy occurs, and (3) the presence of more marked toxic symptoms. The writer reports the case of a woman primipara, aged thirty-six years, who vomited almost continuously when three months pregnant. At four months a physician was called, as the vomiting had not abated. After several days of rectal feeding and cocaine by mouth, the patient was cured without anesthesia. A week later the writer took charge of the case. Vomiting had continued; temperature, 99° F.; pulse, 140; there was slight jaundice, limitation of field of vision, no abdominal tenderness. The urine was scant, of high specific gravity and contained a large amount of albumin, casts, leucin and tyrosin. The patient improved somewhat on rectal salines, peptonized milk and predigested beef by the bowel. Six weeks after the first operation a neuritis appeared in both legs, marked mental symptoms being present at the same time. Owing to occasional vomiting and a progressive rise of temperature a second curettage was performed under ether anesthesia, and a placental mass with membrane remnants was removed. The vomiting ceased, but complete power in the legs had not returned after twelve months. The review of these cases would tend to emphasize the fact that a very large percentage of all cases occur in primipara, and that the disease is at its height at three to four and one-half months. Esophageal pain is frequent and when present with coffee-ground vomit, due to disorganized blood, denotes a serious condition. Of the theories of eclamptic toxemia based upon a biochemical foundation, Viet assumes that the excessive influx of placental elements into the maternal circula-

tion leads to the production of a cytoplasm, which causes the morbid conditions. Ascoli supposes that the pathological changes and symptoms are due to this lytic substance when it is produced in excess of the amount necessary to counteract the invasion by fetal elements. Weichardt supposes the formation of a poison by the dissolution of placental elements which is normally neutralized by an antitoxin; when the antitoxin is absent or deficient, the poison gives rise to eclamptic toxemia. Dienst ascribes importance to the action of the mother's blood serum upon the red blood corpuscles of the child. After elaborate experiments he concludes that the condition of eclamptic toxemia is due to this agglutination and hemolysis, and that this can occur only when there is a free communication between mother and child. Pearce has produced necrosis of the liver, experimentally, by the intravenous injection of hemagglutinative sera in animals. There is evidence that in the toxemia of pregnancy an agglutinative substance occurs in the blood, and that this, by clumping of red cells, may cause liver necrosis. The hemagglutinin is probably not formed in the fetus, for symptoms of toxemia have persisted after the expulsion of the fetus, and a case is on record where eclamptic toxemia occurred in connection with a four and one-half months' hydatiform mole. There is no proof at present that such a hemagglutinin is produced by the placental cells.

Vaginal Cæsarean Section.—Dr. J. B. DeLee (*Chic. Med. Rec.*, September, 1905) gives the following indications for rapidly evacuating the uterus: (1) Eclampsia; (2) heart disease; (3) placenta prævia; (4) Abruptio placenta, premature detachment of the normally placed placenta; and (5) asphyxia in utero, from abruptio of the placenta, prolapsed cord, or prolonged labor. The author recommends the following procedures for dilating the closed cervix in these cases: (1) The use of rubber bag dilators, as the Barnes and its modifications, and the Colpeurynter. (2) Manual or digital dilatation, by the Harris method. (3) The instrumental dilator, of which the Bossi is the original type. (4) Incisions in the cervix, either multiple small incisions, the ancient method, or deep lateral incisions, Dührssen's method, or crucial incisions. (5) The methodical incisions invented by Dührssen and given by him the name vaginal Cæsarean section. (6) Abdominal Cæsarean section. Regarding all the five methods of enlarging the cervix it must be said that nearly everything depends on the degree of effacement. The author gives the indications for vaginal Cæsarean section as follows: First, when the cervix is tightly closed and an indication arises for immediate delivery; and second, when the cervix is pathogenically altered and nature is not able to overcome the obstruction.

Malignancy in Uterine Myomata.—Some authors describe a form of malignant degeneration in myomata, whose starting-point is the muscle cells. It is called leiomyoma malignum and described as being distinguishable from sarcoma of the uterus. H. F. Lewis (*Am. Jour. Obstet.*, Oct., 1905) considers it unprofitable to try to distinguish malignant diseases of the mesoblastic type in the uterus as malignant myoma and as sarcoma. The dividing line is vague, the same tumor, in parts not widely distant, may show varying proportions of young muscle cells, spindle cells, large round cells, small cells and polynuclear cells. All of these tumors are malignant, in that they tend to recur, to grow rapidly, to become necrotic and to form metastases. They are

consequently all sarcomata. A fibromyoma of the uterus is composed of smooth muscle fiber, differing but slightly from that of the uterine wall, and of connective tissue bundles, a true myoma existing only at the earliest stages of the growth. The tumors, composed mostly of muscle tissue, are more prone to malignancy than those chiefly made up of connective tissue. Williams recognizes a myoma sarcomatodes, springing from the muscle cells of a fibromyomatus tumor, and a myosarcoma, a mixture of myomatous and sarcomatous cells, due to sarcomatous changes in the connective tissue elements. Weir would add a third class, resulting from changes in the connective tissue of the uterine wall, without previous existence of any myomatous tumor. The writer would add a fourth class, a sarcoma arising in the connective tissue of the endometrium of body and cervix, the majority of uterine sarcomata being of this variety. The signs of sarcomatous change in a fibromyoma of the uterus are sudden rapid growth and softening, casting off of necrotic tissue (if the growth is submucous) and early cachexia. Carcinoma is a more frequent accompaniment of fibromyoma than sarcoma, although an etiological sequence can be more frequently traced in fibromyoma and sarcoma than in fibromyoma and carcinoma. It has been found that malignant disease is a rarer form of complication of fibroids in the cervix than in the body of the uterus. Inasmuch as the signs and symptoms of the presence of malignant disease are not quickly distinctive, the writer believes that every fibroid of the uterus should be operated upon as soon as the diagnosis is made, except small ones in cases in which the patient can be examined at frequent intervals.

Is the Treatment of Sterility Justifiable without Examining the Sperma of the Husband?—PINCUS (*Monatssch. f. Geb. u. Gyn.*, August, 1905) cautions against the tendency among gynecologists to go ahead with the treatment of sterility on the assumption that it is due to the woman. In every case, he believes, the husband should be questioned as to his power of having intercourse and a careful examination of his sperma should be made. This search for spermatozoa should be made several times, and at rather long intervals, during which time the person is to abstain from intercourse, since it is well known that a temporary azoospermia occurs after repeated coitus. Pincus reports concerning 483 cases of sterility, in 58 of which he found absence of spermatozoa. In nineteen of these cases the wives had been under treatment. Furthermore, he found in 37 instances persistent oligospermia and 13 times necrospermia.

Calcification of Uterine Fibromyomata.—The important etiological factor in the calcification of uterine fibromyomata is age. G. Piquand (*An. de Gyn. et d'Obstet.*, June, 1905) states that the condition occurs after the menopause, most frequently in interstitial and sub-peritoneal types. It is rare in polypi and in submucous fibroids. The calcareous nodules may start at the periphery or center of the growth, gradually increasing in size until there is nothing left but a calcareous mass surrounded by a capsule. A fatty degeneration may precede the calcification. The uterine arteries become thickened and atheromatous. The chief symptoms are pain, previously absent, compression of bladder or rectum, metrorrhagia or leucorrhea. The change in hardness may sometimes be appreciated by palpation. If the condition is unrelieved by operation, a

frequent termination is ulceration through the wall of rectum or bladder.

Puerperal Fever, as Seen by the General Practitioner.—Puerperal fever has always been a great danger to the parturient woman. F. L. GLENN (*Chic. Med. Rec.*, Oct. 15, 1905) reports several cases from his private practice and writes on the subject extensively. He arrives at the following conclusions: (1) If there occurs at any time following the birth of the child, or miscarriage, a temperature of 101° F. or over, with no apparently assignable cause, a thorough examination of the perineum and vagina should be made. (2) If the examination of the perineum and vagina give negative results, the uterus should at once be examined by using a dull curette, and if any blood clots or placental tissue are discovered, they should at once be removed by the finger or curette and the uterine cavity douched with some mild antiseptic solution. (3) If the temperature and pulse return to normal after one curettement, there is no indication for its repetition. (4) If the temperature is partially reduced following the curettement, the uterine douche alone should be continued from one to four times a day, depending on the severity, or until the temperature goes to normal. (5) If the chills persist and the temperature remains high after the curettement, I would repeat it once daily until the temperature is reduced or until nothing can be secured from the uterus but bright red blood. (6) In my experience the majority of cases are immediately checked by one curettement and the temperature drops to normal in a few hours. (7) That puerperal fever following abortion has proven more serious in my hands than that following a full-term confinement. (8) That chills during the puerperal period do not necessarily indicate septic poisoning from any source. (9) That the use of a rubber glove on the hand during the examinations would lessen the liability of carrying in infection. (10) That the use of a bed pan in the reclining position is not for the best interests of the case, but instead, the patient should be assisted to an erect position to urinate and for bowel movements, and in this position drainage is assisted.

Dermoid Cysts.—G. SNEGIREFF (*An. de Gyn. et d'Obstet.*, May, 1905), after describing a case, states that dermoid cysts have been found near the orbit, at the base of the skull, in the bladder, but most frequently in the genital organs. They are called dermoid cysts when composed of epidermic structures alone; when they are derived from all three layers of the embryo, they have been termed embryomata. As to the origin of these structures, the theory of parthenogenesis is that the cells of the feminine ovule are capable of forming tissues. The writer believes that fecundation is essential to the formation of an embryoma, in that a tissue organized on the normal type presupposes the union of cells of heterogeneous individuals. These growths form about 14.5 per cent. of cysts; they have no tendency to become carcinomatous. The most frequent complication is probably sclerocystic degeneration of the ovary.

THERAPEUTICS.

Physostigmine in Intestinal Paresis.—A short time ago atropine was praised highly in all cases of intestinal obstruction depending upon paresis of the intestines. P. RODARI (*Correspbl. f. Schweiz. Aerzt.*, Sept. 1, 1905) believes, however, that physostigmine is still

more suitable for such cases. In one instance where operation was refused he gave atropine without the slightest effect. The patient was getting weaker and weaker, but after a subcutaneous injection of half a milligram of physostigmine, rapid improvement set in. In some cases it will be necessary to give as much as one milligram. The drug is not suited for children, but does good service if given by mouth for nervous flatulency and atonic meteorism.

The Anti-Emetic and Eupeptic Action of Citrate of Soda.—M. G. VARIOT (*Bull. de la Soc. de Pédiatrie de Paris*, June, 1905) enthusiastically reports his happy results in arresting the vomiting of infants either breast fed or artificially nourished, and also in favoring digestion in certain cases, by means of citrate of soda. He recommends the following formula:

R Sodii Citrat.....	5.00
Aq. Destil.....	300.00

M. S. One dessertspoonful to one tablespoonful before each nursing period, or mixed with the bottle. The citrate of soda should be freshly prepared by the interaction of bicarbonate of soda and citric acid in definite proportions.

An Antitoxic Serum for Erysipelas.—The experience of Dr. Fornaca, of Turin, in the application of antitoxic therapy to erysipelas is favorably commented upon by Dr. ROCHARD (*Bull. Gén. de Therap.*, Sept. 8, 1905). The former used the blood-serum obtained from patients convalescing from erysipelas. The doses used were generally 10 to 30 c.c., sometimes 68 to 90 c.c., hypodermically. Nine cases were thus treated, including erysipelas of the face. As the result of this form of mediation, headache, delirium, and hallucinations disappeared, the appetite improved, and the temperature fell in the majority of the cases. Whenever albuminuria was associated with the erysipelas, the antitoxin caused the disappearance of the former.

Alypin in Diseases of the Eye.—Alypin, the new anesthetic, seems to be adapted particularly for the treatment of diseases of the eye, according to H. KÖLLNER (*Berl. klin. Woch.*, Oct. 23, 1905). A single drop of a 5 per cent. solution will cause a more marked anesthesia than the same amount of cocaine and the internal muscles of the eye are not affected. The intra-ocular pressure is not influenced and the vascular contraction seen with cocaine does not occur. In most cases the anesthesia is very rapidly complete, and the absence of mydriasis and disturbance of accommodation is very often a decided advantage. Very large amounts may cause exudations into the cornea.

Medicinal Treatment of Appendicitis.—The confusing dissensions of opinion as to the proper time for operation in appendicitis are settled in a simple manner by P. MOOSBRUGGER (*Münc. med. Woch.*, Sept. 12, 1905), who advocates the medicinal treatment alone. In mild cases, he merely applies flaxseed poultices and administers 15 grains of collargol in six ounces of water, a tablespoonful every half hour. In more severe cases, the dose is increased to 30 grains in six ounces of water, 2½ drams every hour, and ungt. Credé is applied locally. The drug may also be given per rectum where vomiting interferes. A cure is claimed even where peritonitis has already set in, and of a large series of cases only two were lost since the peritonitis had already advanced too far when the patients were seen for the first time. Surgical intervention is only indicated where there is general peritonitis, and in these cases it is advisable to establish an artificial anus and also to give large doses of collargol. This drug is harmless even if applied in very large doses.

THE MEDICAL NEWS.

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No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, Including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
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LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, DECEMBER 9, 1905.

THE HEALTH INSPECTOR VERSUS THE PRIVATE PRACTITIONER.

NOTHING but unstinted admiration should be accorded the magnificent system of health inspection evolved by the New York City Department of Health. Still in process of development, it has already accomplished an extraordinary amount of work, and has served as a splendid model for many other cities, both in this country and abroad. It is surprising that the vast increase in the powers vested in the officials of the Health Department has been accompanied by such a small amount of friction with the general public and with the members of the medical profession. It is to be expected that the operation of the complicated machinery of public administration should reveal a number of minor imperfections. In this respect the system of health inspection is not perfect. There are few men in active practice, particularly among the poor, who may not recall some instance of vexatious conflict with the Health Inspector. It may not seem out of place to investigate the opportunities that make such conflicts possible, and to suggest the proper remedies for their elimination.

This subject has recently been ventilated in the editorial columns of the *British Medical Jour-*

nal, and it is interesting to note that the same problems confront the medical profession abroad as obtain in this country. The main evil that has grown out of the system of health inspection is the occasional pernicious meddling with the duties and privileges of the regular medical attendant. It is time that the voice of the profession should be lifted in no uncertain tones against the offenders. The physician should understand his rights and prerogatives and should vehemently protest against their invasion. Supine indifference in this respect is an evil of equal magnitude.

With justice to the Department of Health it may be said that the rules guiding health inspectors prohibit any criticism in the presence of the family, of the diagnosis, treatment, or attitude of the attending physician. That such criticism is frequently made, few busy practitioners will venture to deny. In many cases it never comes to the knowledge of the medical attendant, and in other instances in which it cannot be directly proved, it may be inferred by a changed attitude in the patient's friends or by a subsequent loss of prestige of the practitioner. Such criticism might be dismissed as flip-pant if it did not come from one who is really a fellow practitioner. The cultivated portion of the community may properly ignore and will frequently resent such impertinent interference with the duties of the family physician, coming usually from one whose qualifications and experience may be vastly inferior. The medical inspector may occasionally forget that even his badge of authority does not make him less amenable to the ethical code. A competitor of the private physician, the health inspector may even prostitute his official capacity to his own professional advertisement. This possibility has been realized, unfortunately, too many times, having been practised by unscrupulous inspectors among the unintelligent population of the tenements.

That such grave violations of the rules of an otherwise exemplary department of the public service should occur is the natural consequence of the vicious method of appointment that has prevailed in former days. When political "traction power" rather than personal qualification was the main consideration in making up the staff of medical inspectors, little wonder that unworthy individuals have crept into the service. It is to the nonchalant attitude of the pro-

fession at large that many such parasites of a generally efficient and honorable corps of inspectors still find opportunity to practise their nefarious vocation. It is to be hoped that an awakened vigilance will uncover every such iniquitous and illegal action and that the guilty members of the inspection staff will be summarily dismissed from the department.

There are numerous occasions for misunderstanding and unpleasantness to arise between the inspector or diagnostician of the department and the private physician. This usually hinges about some difference of opinion as to the diagnosis of a particular case, which, as long as it is not brought to the attention of the patient's family by the health officer, does not actually infringe upon the rights of the practitioner. A specific case may serve to clearly illustrate this fact: A physician is called to see a patient, giving a typical history of scarlatina, and in which the eruption has already entirely disappeared and the desquamation is far advanced. He reports this case to the department as scarlet fever, and two days later an inspector is sent. The latter questions the parent as to the history of the case. Now it is well known that there is a tendency, particularly among the ignorant, to conceal, and even to distort, facts, when confronted by the health officer. This is an unfortunate circumstance, but it is real, and has to be reckoned with by all officials of health departments. The inspector naïvely accepts the history of the case as presented by the mother as true, being told that the child has only been ill for a few days, that it had no rash, and that she is surprised that the attending physician has reported the case as scarlet fever. The inspector makes his examination, finds no evidence or desquamation, and concludes that the parent is right. He forgets, however, that in mild cases the desquamation may be slight, and that frequent inunctions and bathing may make it scarcely perceptible. He accordingly reports his conclusions to his superiors, and an expert diagnostician is sent to verify his findings. The latter is presented with the same facts as to the history as his predecessor, and also reaches the same conclusion. The attending physician is accordingly notified that the department does not consider the case as one of scarlet fever, but is willing to technically quarantine it as such if the physician so desire. The latter, already convinced as to the correctness of his diagnosis, will, of course, emphatically

insist that this be done. Moreover, he cannot help feeling some resentment toward the inspector and the diagnostician who have accepted the word of the parent without consulting the original medical attendant, who may be assumed to have some ground for reporting the case as scarlet fever. Now, even if nothing has been said to the parent to indicate that there is a difference of opinion, it does not require more than a limited intelligence to suspect that the repeated examinations indicate that the family doctor is in some way at fault. It is quite probable that the inspector or diagnostician will have dropped some hint that the physician mistook a heat rash for scarlet fever.

Dispassionately viewing the results of the entire controversy, one readily observes that the Department of Health has gained nothing, while the physician has lost the good opinion which the family may have had as to his ability and skill. Is it desirable that the department should take such pains to verify or overthrow the diagnosis of the physician who has conscientiously reported a case of one of the common contagious diseases, in view of the fact that the physician will ultimately insist that his diagnosis be officially upheld?

In order to prevent these unpleasant clashes of authority two remedies suggest themselves. First, the Health Department may accept as bona fide the diagnosis of the attending physician and, provided the case does not require removal to a contagious disease hospital, may take no further concern in the case than to note by occasional inspection that quarantine is being properly maintained. In this manner all the requirements of the sanitary law may be fulfilled, and at the same time there can be no occasion for offending or injuring the family physician. Second, if a diagnostician must be sent to see a particular patient, let him first communicate with the physician in attendance, obtaining from the latter the true facts about the patient, or arranging for their joint presence at the examination of the patient. In this manner the danger of offending the delicate susceptibilities of the physician is reduced to a minimum.

It must be admitted, in justice to the Health Department, that the latter is obliged to contend with many circumstances which are beyond its control. Rules alone are not sufficient to control the numerous personnel of the department, and occasional lapses from proper conduct are to be

expected, as in all other large governmental or municipal departments. Moreover, it is unfortunate that a great deal of deception and evasion has to be reckoned with among the members of the medical profession. Every one knows that many cases of contagious, not to speak of merely communicable disease are not reported. Besides, the amount of deliberate falsehood encountered among those with whom the department is obliged to deal, is astounding. If to these embarrassments be added the difficulties associated with the enormity of the task it has to perform, with an inadequate force at its command, one can readily account for the irregularities and deficiencies in this important branch of the public service.

Within recent years the administration of the New York Department of Health has been singularly wise and efficient, and there has grown an increasing regard for the rights and convictions of private physicians. Indeed, the wide extension of the system of reporting communicable diseases has made it imperative that the department should gain the full confidence of the profession at large. Only in such a way can the praiseworthy efforts of the department meet with any degree of success. It is to be hoped that an improvement of the ethical standard among many of the inspection staff will serve to further stimulate the cooperation of the large body of practitioners. The result will be that the number of unreported cases of communicable disease will become smaller and smaller, and will finally almost vanish entirely.

WHAT NEXT?

"WHERE did you learn to play golf, Mr. Sapley?" "Why, here on the links, Miss Sharpe." "Really? I thought it must have been at a correspondence school!"

Now that is a joke, classified as such in the funny column, but we are asked to take in all seriousness the advertisement of a correspondence school of nursing. It appears in a highly reputable paper, a modest little notice offering to send literature upon request, and embellished with the picture of a pretty girl in the traditional cap and uniform, pouring out medicine. The hopeful aspirant for similar prettiness and uniform, who duly writes for the promised information, is rewarded with a specious little pamphlet and a confidential letter, both setting forth

in many a suave phrase the profits and pleasures of a nurse's life, and striving to create the conviction that the royal road to all this is through the aforesaid school. To make matters run more smoothly, the school has adopted a name which has been for some years associated in the popular mind with genuine and successful instruction by correspondence in various branches.

Nursing is described as "an uncrowded, lucrative, womanly vocation," which does not "unsex" the one who practises it, and a few glittering generalities as to the noble calling which "has always attracted true-hearted and whole-souled women" are skilfully spread over its difficult and disagreeable features, cleverly interspersed with allusions to the large wages to be expected, as a bait to those more susceptible to motives of gain than to visionary ideals. Single sentences from authoritative sources are quoted with the inference that they apply to nursing as taught by correspondence, when in fact they were spoken of the profession in general or of the training acquired in a hospital course; and emphasis on the necessity of a theoretical training is made to seem absolutely inimical to the practical side.

With an ostentation of frankness the possible question as to the value of a correspondence course is taken up and discussed as indicated above, and doubtless many may read these smooth pages without realizing that an argument for a ten weeks' hospital course for those who cannot take more does not apply to the case in hand in the slightest degree.

The whole thing is admirably calculated to construct in the mind of the unthinking or the credulous a roseate picture of spending leisure moments in easy study and ultimately blossoming out, in the desired uniform, into a phenomenon of intelligence, tact and courage, who shall be adequate to every demand upon her, and earn the enthusiastic gratitude of family after family where her presence has brought relief and joy—to say nothing of rapidly amassing a competency.

No qualifications are exacted for enrolment beyond a willingness and ability to pay \$15 down and \$5 a month thereafter until \$40 has been paid. That is for the course in general nursing. The course in obstetrical, gynecological and surgical nursing comes higher, \$50, and both courses are imposingly outlined in the pamphlet.

If this first batch of literature fails to convince

and the application hangs fire; it is followed by a touching and mildly reproachful epistle, beseeching the rash applicant for information not to neglect to "develop her natural gifts," and repeating the assertion that that way lies "increased earning power." As another spur to flagging enthusiasm, it is stated that the tuition fees are to be raised 25 per cent. in the near future, and doubtless this suggestion of a bargain sale may prove effective in certain quarters.

About this time, also, comes another pamphlet with another pretty girl on the cover, intent, this time, on a thermometer. Inside are letters from ex-pupils of the institution, accompanied by their photographs, testifying to the benefits derived, financially and spiritually, from the course, and congratulating its students upon the fact that they do not "lose their refinement and sympathetic nature, as many of the hospital nurses do."

Doubtless the letters are written in good faith. The mind that would be attracted by such a scheme would be apt to be satisfied with its results. But when one notices how cleverly all the advertising is adapted to appeal to the ignorant, the mercenary and the visionary, the menace to the public really becomes of grave import.

AN INTERESTING CENTENARY.

A CENTENARY volume, rich in names and deeds, has been sent to us from Dr. Osler. It is the history of the doings of the Royal Medical and Chirurgical Society of London since the year 1805, when the society was founded.

The death of John Hunter, who had for years gathered the choice spirits of medicine around him in his museum at the back of his grand house in Leicester Square, left his fraternity shaken for want of a leader; the fashion of dining and debating at coffee houses in the manner of Addison's day was going out, and the conditions were ripe for the formation of a new society, when a very human impulse of reaction against the irksome rule of Dr. Sims, who had for nineteen years as president nagged the Medical Society of London into a state of rebellion, surged strongly enough to gather together a society consisting of twenty-eight active members.

During those first five years the monthly meetings were slimly attended by the founders themselves; but comfortable rooms were furnished in

Verulam Buildings, papers were read and discussed and published by young men whose names have since become world-famous. The first glimpses of certain surgical operations and the first exposition of some theories that are to-day standard were there talked over with mingled caution and enthusiasm, and sometimes in the annals of a meeting, when but five or ten were present on a wet and foggy night, there appear with no apparent notes of excitement or unwonted interest, facts which have since proved to be landmarks in the history of surgery and of medicine.

The first and second volumes of the Society's transactions created great interest, for it was not only an honor but an advantage in practice to have a paper in the Transactions. The present Medical Journal and Transactions of many Societies and Hospital Reports were not then in existence, so that these transactions represented a favorable medium for the presentation of original work.

Through its successive homes in Lincoln's Inn Fields and Berners Street, until the present time when its building in Hanover Square is enriched with the busts and portraits and works of all the men that English medicine holds sacred, the Society has gone on growing. Agitation over phases of medical society life, proposed unions with other societies, and the birth of innumerable societies for specialized work have all threatened to diminish its power, but at its hundredth birthday it lives in a gracious old age, with no more serious obstacle to be overcome than the lateness of the modern dinner hour, which prevents prompt attendance, and its bad rule of printing papers before they are read, which enables the indolent man to read them quietly at home in slippered ease.

The volume includes biographical notes of the fifty presidents of the Royal Medical and Chirurgical Society, and we may read with their names a chronicle of the march of medical discovery through the last century. More than that, friendships and associations between the great men of English medicine and the great men of the English nation are vividly set forth, so that one may catch, as it were, a photographic impression, biographic, in a double sense of the word, of these leaders of men marching onward through the century and disseminating their discoveries of the laws of health and healing to the people at large.

ECHOES AND NEWS.

NEW YORK.

A New Society.—On November 22 the New York Reno-Vesical Society was organized for the purpose of studying the diseases of the bladder and kidneys. The officers for the ensuing year are: President, Ramon Guiteras; Vice-President, Winfield Ayres; Secretary, Robert R. Hollister. The meetings are to be held monthly. The membership is limited to fifty.

Epilepsy Prize.—At the fifth annual meeting of the National Association for the Study of Epilepsy, held in the Academy of Medicine, New York City, on November 29 last, Dr. W. P. Spratling, president, announced that the association offered a prize of \$300 for the best essay on the Etiology of Epilepsy. Physicians in any country may compete for this prize. The award will be made in November, 1906, but all essays submitted must be sent in by September 1 of that year. Details as to conditions governing the award may be obtained from Dr. W. P. Spratling, Superintendent of The Craig Colony for Epileptics, Sonyea, Livingston County, N. Y.

Society of Moral and Sanitary Prophylaxis.—The December meeting of the Society of Moral and Sanitary Prophylaxis will be held at the Academy of Medicine on Thursday, December 14, at 8:30 P.M. The following questions will be discussed: 1. Should education in sexual matters be given to the great body of the young men of the working classes? By Dr. L. Duncan Bulkley. 2. Should this instruction be individual or collective, through pamphlets, tracts, lectures, talks to young men, etc.? By Rev. J. J. Wynne, S.J.; Dr. F. N. Seerley, of the International Y.M.C.A. Training School. 3. What social groups and agencies whose work brings them in direct contact with the living conditions of the people may be utilized for this educative work? By Dr. David Blaustein, Superintendent of the Educational Alliance. 4. Should this education be extended to the young woman of the working classes? By Dr. Margaret Cleaves. General discussion by prominent members of the laity and medical profession.

Epilepsy on Films.—The first moving pictures of epileptic seizures ever produced were shuttled off before the fifth annual meeting of the National Association for the Study of Epilepsy at the Academy of Medicine in West Forty-third Street on November 29. About 37,000 accurate pictures, showing the development of numerous seizures at the Craig Colony for Epileptics at Sonyea, N. Y., were exhibited. They were made under the superintendence of Dr. W. G. Chase, of Boston, and Dr. W. P. Spratling, president of the association and superintendent of the colony. Dr. Chase prefaced his comments on the pictures by pointing out the value to medical science of these new studies. Students in the clinics, he said, had formerly to wait many days to observe even a mild seizure of the affection. But now the most aggravated and the most trivial symptoms could be studied in detail at will. This, he said, was of incalculable value not alone to students, but to the advanced specialist in epilepsy. Not alone were the moving pictures prepared, but films covering a complete seizure had been printed in a small book. By running the thumb over the pages they would fly back, giving the whole seizure. Thus every doctor could have epileptic fits in a vest pocket edition or in a large edition de luxe, as he pleased. The epileptics were shown on a large rubber blanket before a dark screen. The most delicate tremor of the muscles of face and body could be distinguished

as the fit progressed. Comments were made by Drs. Spratling and Chase, pointing out the peculiar manifestations of each type of the disease. The exhibition closed amid the applause of the large audience of medical men.

Tuberculosis Exhibition.—The American Tuberculosis Exhibition, in the American Museum of Natural History, Seventy-seventh Street and Central Park West, might make a little museum all by itself. In fact, the exhibition is a popular educational measure—the most striking that has ever been taken in the present widespread campaign against tuberculosis. Organized under the auspices of the National Association for the Study and Prevention of Tuberculosis and the Committee on the Prevention of Tuberculosis of the Charity Organization Society, it shows the main facts with regard to the disease and its prevention and cure. The Health Departments of various cities and private sanitariums all over the United States have contributed to the exhibition, and the person who visits it cannot fail to come away “wiser and sadder.” A large placard in red letters announces as the text for the show a sentence from Pasteur: “It is in the power of man to make all infectious diseases to disappear from the world.” To the right on entering is a wax figure reclining in an outdoor chair, muffled up to stand the cold in woollens and a tam-o'-shanter, with an individual, hygienic “sputum box” in her right hand, in her left a copy of Mrs. M. B. G. Eddy's “Science and Health” to begile the tedium, of the rest cure. It smells of mortality a bit and the Eden Musee, but the little lady is the Consumptive Queen, and everything else in the exhibition is meant to minister to her needs. The variety of these things is great. Among them are many variations of tents which shall protect the sleeping patient from draughts while not excluding a breath of fresh air. One interesting adaptation of the tent idea is known as the window tent, by which the patient may sleep indoors and yet breathe the night air directly from the outside without getting any of the air in the room. This is accomplished by means of a canvas cover that holds his head as in a hood, open only to the open window. The air once breathed, being heated, rises and escapes through the window at the top. But there are models of many other tents, bedrooms, wards and open air pavilions. One photograph shows a pavilion full of people in the Maine mountains on a day in winter. It is called a “zero party,” and is, “quite the thing to do.” Johns Hopkins Hospital sends a visiting nurse's basket containing all things needed on a visit to a patient in the slums, ranging from tissue paper handkerchiefs to tracts on the subject and a “sputum cup.” Models and photographs of sanitariums, not only from New York, but from Boston, Philadelphia, Chicago, Colorado, and many other places, crowd the floors and the walls, and contain many hints for the care of patients. They all lay emphasis on the cleanliness and freshness that are such important factors in the successful treatment. And the quantity of tracts and placards on the subject would make a tuberculosis library. The photographs of the mountains and meadows in which the patients are treated are so delightful, so full of the spirit of holiday leisure and quiet vacation fun, that they should tempt any victim who thinks he can't afford to leave town, to go anyway, and have a good time, and be cured.

PHILADELPHIA.

More Aid for Sufferers.—The Hahnemann Hospital graduated eleven nurses on the evening of November 29, 1905. The Rev. Floyd W. Tomkins opened the

396. This amount is now considered insufficient, since it has become known that the State will not care for the insane children who are to be kept separate from the adult insane.

CHICAGO.

Prohibition of Sale of Dangerous Drugs.—At a meeting, held November 20, the City Council of Chicago passed an amendment to the ordinance prohibiting the sale of morphine and similar drugs, so that now they can be obtained only on the prescriptions of physicians or dentists.

Report of Chicago Relief and Aid Society.—The forty-eighth annual meeting of this society was held in November. It was reported that the society had spent \$26,400 in relieving the poor during the fiscal year. A new feature of the work was the fresh air station for sick babies and visiting nurses' association. One hundred and sixty hospital beds are now controlled by this society.

Committee on Nomenclature and Classification.—Commissioner of Health Charles J. Whalen has asked the Chicago Medical Society to appoint a committee of experts in the nomenclature and classification of causes of deaths and the registration of vital statistics, authorized by the society to make a study of the department's methods and work in these subjects, with instructions to report any defects discovered and to suggest practicable remedies therefore.

Chicago's State of Health.—For the week ended November 25 the total number of deaths from all causes was 471, equivalent to an annual death rate of 12.34 per thousand. The number of deaths is 39 less than for the preceding week, and 46 more than for the corresponding week of 1904. Pneumonia continues to lead the death causes with 73, followed by consumption, with 60; nephritis, with 49; heart diseases, with 42; violence, including suicide, with 39; acute intestinal diseases, with 25; and cancer, with 20.

Spread of Diphtheria.—A number of cases of this disease have been reported in Moline, Ill. The State Board of Health has announced that the promiscuous use of slate and lead pencils in public schools is responsible for the spread of contagious diseases, with especial reference to diphtheria. Diphtheria is prevalent at Metcalf and the schools and outbuildings have been thoroughly disinfected. There is said to be much diphtheria in Granville and Ladd, but the epidemic in Spring Valley is now under control.

Annual Meeting of Evanston Hospital Association.—The records of the Evanston Hospital show that during the fiscal year 85 free patients were admitted, or more than 25 per cent. of the total number of patients received during the year. In the children's ward 22 patients were admitted, 14 of whom were free patients. The total number of days service during the year was 7,561, or 622 days more than last year. The passport for admission is sickness or injury combined with poverty. No letters are required.

Dedicatory Exercises of the Ottawa Tent Colony.—This colony, which was established a little more than a year ago, will hold its dedicatory exercises December 12 at Ottawa, Ill. There will be short addresses by physicians and laymen. Physicians interested in this colony have demonstrated the possibility of cure of tuberculosis in the Illinois climate, and the results of treatment have been quite as suc-

cessful as anticipated. Extensive improvements have been made to meet the increased demand and to make the treatment more attractive.

Quarterly Report of the Illinois Commissioners of Public Charities.—This report for the quarter ended September 30 gives the following as the per capita cost of the various State institutions: Illinois Western Hospital for the Insane, Watertown, \$26.21; Illinois Eastern Hospital for the Insane, \$30.05; Illinois Hospital for the Incurable Insane, \$30.32; Illinois Central Hospital for the Insane, \$31.27; Illinois Southern Hospital for the Insane, \$35.13; Illinois and Northern Hospital for the Insane, \$38.67; and Illinois Asylum for Insane Criminals, \$50.43.

New Army Medical Bill Endorsed.—At a meeting held November 13 the Adams County Medical Society adopted a resolution with reference to increasing the efficiency of the Medical Department of the United States Army, as follows: WHEREAS, Seven years have elapsed since the country was shocked by the disgraceful sanitary conditions which prevailed at Chickamauga, Jacksonville and Camp Alger, during the Spanish war, and yet no successful effort has been made to remedy the inadequacy and faulty organization of the Medical Department of the United States Army, to which this utter failure of military sanitation is chargeable; and, WHEREAS, The continuance of these discouraging conditions is depleting the army medical service of its best men by resignation, and deterring the brightest minds of the profession from seeking a future in so promising a field; therefore, *Resolved*, That in the judgment of this society the situation is so critical as to demand immediate measures for relief.

GENERAL.

Dr. John C. Munro Under the Knife.—Dr. John C. Munro, of 173 Beacon Street, Boston, has been successfully operated on for appendicitis at the Carney Hospital. The operation was performed by Dr. John T. Bottomley.

Resignation of Dr. Vaughan.—Assistant Surgeon-General George Tuily Vaughan has resigned his commission in the Public Health and Marine Hospital Service in order to devote his entire time to the practice of surgery.

Faulkner Hospital Report.—The annual meeting of the Faulkner Hospital Corporation was held recently at the hospital, on Centre Street, Jamaica Plain, Mass., President Henry B. Chapin, of the board of trustees, presiding. Reports of the board of trustees, Treasurer Alfred Bowditch and the superintendent, Miss Laura E. Coleman, were read and ordered to be printed. The total number of patients treated at the hospital for the year was 368; average free patients per day, 6.

Fifteenth International Medical Congress.—As a large number of American physicians will attend the Fifteenth International Medical Congress, to be held in Lisbon, Portugal, April 19 to 26, 1906, itineraries have been arranged to enable the journey to be made with the maximum of comfort and enjoyment, at fixed inclusive fares. The business arrangements of the tour have been placed, as before, in the hands of Thos. Cook & Son, the well-known tourist agents, which insures complete service for the trip, and relieves passengers from all troublesome details incident to foreign travel. Those delegates who attended the last congress in Madrid, sailing from New York on the "Prinzess Irene," will remember the excellent service afforded them. A preliminary

circular has been issued, and more detailed information will follow.

Electrical Stimulation.—Professor Frank W. Bancroft, of the Department of Physiology at the University of California, has completed some important experiments dealing with the effects of electrical currents on sea life, and has issued the results in a bulletin entitled "On the Validity of Pflüger's Law for the Galvanotropic Reactions of Paramecium." Dr. Bancroft has succeeded in demonstrating that the cilia covering the body of the paramecium and the cause of its locomotion respond to electrical stimulation by changing the direction of their movement. When an electric current passing through water containing the paramensis is interrupted, the cilia reverse their beat on that end of the animal which is nearer the anode, or positive pole. When the current is made again, and during its flow, only cilia on the end nearer the cathode, or negative pole, reverse. These results are in strict accord with the law formulated by Pflüger for the phenomena of muscular contraction under electrical stimulation.

Dr. Bowditch Leaves Rutland.—Dr. Vincent Y. Bowditch, of Boston, visiting physician at the State sanatorium for consumptives at Rutland, one of the most desirable medical positions in the gift of the State, has resigned his connection with the sanatorium, the resignation to take effect December 31. Dr. Bowditch's action was brought about by lack of harmony with the governing board of trustees. Dr. Edward O. Otis, of Boston, has been appointed to succeed him. Dr. Bowditch himself would say nothing regarding his resignation, and his friends were equally reticent, but Dr. John P. Rand, of Monson, a member of the board of trustees, said that the Boston physician had come to be out of harmony with the majority of the board, although there was no criticism to be made of Dr. Bowditch. Dr. Bowditch graduated from Harvard College in 1875 and from the Harvard Medical School in 1879. He was an instructor in the Medical School in clinical medicine. He is visiting physician at the Boston City Hospital and the Sharon Sanitarium. He is a member of the American Climatology Association and the Massachusetts Medical Society. Dr. Edward O. Otis, his successor as visiting physician at the sanatorium, is a graduate of Harvard Medical School, class of 1877.

Bubonic Plague in Hawaii.—The Board of Health in Honolulu has decided to abandon its policy of silence in regard to sporadic cases of bubonic plague, and to ask the newspapers to publish every two weeks reports of all contagious diseases occurring during that time. The board has been led to adopt this policy by the fact that exaggerated rumors have become circulated lately regarding the number of cases of plague. This community four years ago passed through a trying experience. Honolulu had been quarantined for months. More than a million dollars had been spent in sanitary and other measures for the suppression of the epidemic. Business had been deranged, and the tourist traffic of the island had almost been destroyed. During all this time there had been fewer than 100 cases of plague. The epidemic was broken, but occasional sporadic cases were found. To prevent the general state of panic, the derangement of business and the feeling of discouragement which it was feared would follow if each of these occasional cases was made public, the Board of Health entered into an arrangement with the newspapers of Honolulu, by which it was

agreed that no publicity should be given to such cases. The board agreed to notify the newspapers of each case as it occurred, as it also notified the Federal quarantine authorities, and the cases appeared regularly in the monthly tabulation of vital statistics prepared by the board. During the four years the occasional cases of plague have been regularly reported to the quarantine officers and by them reported to the Marine Hospital Service at Washington, and published in the weekly and monthly reports of the Marine Hospital Service. At most times this policy has proved satisfactory, though gossip has constantly been exaggerating and distorting the status of affairs. On several occasions when cases of plague have been found within a few days rumor has become unusually busy, and alarm and uneasiness have spread throughout the community. During October six cases of plague were discovered, and rumor multiplied this number to sixteen, thirty-five, fifty-four, and even as high as eighty deaths a week. Because of this President Pinkham, of the Board of Health, recommended to the board that the newspapers be requested to publish at frequent intervals the official record of plague cases. It is hoped by this means to prevent the spread of exaggerated rumor.

Canal Zone Made Healthful.—Late reports from the Canal zone are very encouraging as regards yellow fever. Col. Gorgas says that last month only one man of the four thousand non-immunes in the isthmus was bitten and not a death from yellow fever occurred. Net cost for the whole work, about \$1,200,000. "This," he reported to Governor Magoon, "I consider as indicating the near approach of the disappearance of the disease. Panama often has been free from yellow fever," he explained, "but the only disappearance was when they had no non-immunes to contract it. At all times when there were non-immunes here they had yellow fever as long as the non-immunes remained. During October all the conditions were favorable for yellow fever. About four thousand non-immunes were here—more than ever before—and the month was wet and hot. Apparently, from the records, the season does not bear much reference to yellow fever. The weather in January is as favorable for the breeding of the *Stegomyia* as in July. The records show that if we have non-immunes in Panama in December we will have as much yellow fever as we would have in July. It has altogether in the past depended upon the supply of non-immune human beings. The only yellow fever period when there was approximately as many non-immunes on the isthmus as we have at present was at the time during the French régime, when they had their maximum force. This was in October, 1884, when they had 19,243 men on their rolls, of whom 2,706 were non-immunes. Among these during that month they had eighty-four cases of yellow fever and twenty-one deaths. We had four thousand non-immunes, one case and no deaths. The periods compared were the same month of the year, the climatic conditions were the same and the number of the non-immunes in both was large, ours being two to one. The great difference was that in the year 1905 modern tropical sanitary methods were enforced all over the isthmus by twenty-two hundred men at a very moderate expense for the result achieved. In 1884 these methods were unknown. Malaria and yellow fever were a mystery to science. Our predecessors were unable to do anything for their control. I maintain that our

success is due entirely to the sanitary measures put in force. The record proves it. I have no doubt that when the sanitary improvements at present going on, such as street paving at Panama and Colon, water works and comfortable, screened buildings for employes at all points, shall have been completed, the health conditions will still further improve. The sanitary condition of Panama can be considered as settled. The general health of our forces engaged on the canal can now be kept as good as if they were digging it in a healthy part of Maryland." Some idea of the magnitude of the sanitary work is given by the figures for October, when 2,164,537 square yards of brush and grass was cut and burned, three miles of new drains were dug, twenty miles of old drains were cleaned and oiled, and 20,000 square yards of swamps were drained and filled in. One hundred houses were fumigated, thousands of tanks, wells and cisterns disinfected, and a vast amount of other sanitary work was done. The report is made that the natives are gradually learning to abate nuisances and to cooperate with the authorities. A sharp watch was kept on the incoming vessels that no infected person should land. The passengers examined numbered 2,585.

OBITUARY.

The death of Professor Dr. von LEUTHOLD, surgeon-general of the army and the Emperor's body physician, is reported from Berlin, on December 4.

Dr. LEVI WOOD died recently at his home in Ephratah, Fulton County, N. Y. He was sixty-two years old and was one of the oldest and most prominent practitioners in that section.

Dr. ERNEST J. MEIERE, a Confederate army surgeon, died in Cripple Creek, Col., on December 3, of pneumonia, aged seventy-five years. Dr. Meiere was appointed a consul to China, in 1888, by President Cleveland, but resigned, it is said, because President Cleveland demanded that he apologize to an army lieutenant whom the physician struck for refusing to shake hands in Washington.

Dr. EDSON DAVIDGE ROYAL died November 28 at the home of his parents in Lebanon, Conn. Dr. Royal was thirty years old. He was a graduate of the College of Physicians and Surgeons, and after graduation became connected with the Paterson General Hospital. He leaves surviving him his parents, Mr. and Mrs. N. B. Royal, of Lebanon, Conn., and a brother, Ralph Royal, a lawyer of New York City.

Dr. EDWARD OSBORNE, the last of a family that for two centuries enjoyed the respect of the residents in and near East Hampton, L. I., died December 4 of heart trouble. Dr. Osborne was seventy years old. He was one of the most charitable men of the place. On hundreds of occasions, his friends attest, he braved fierce storms to drive miles through snow and sleet at night to visit sufferers who he knew could never pay him for the service. Since 1735 the Osborne family had occupied the same homestead in East Hampton.

Dr. AMBROSE L. RANNEY, a well-known specialist, died suddenly last week in the office of Frank L. Hall, an attorney, on the sixteenth floor of the Johnston Building, 30 Broad Street, New York. Dr. Ranney was an old friend of Mr. Hall's, and although the attorney was not his counsel the physician visited him. A. Elliott Ranney, the doctor's son, arrived quickly in answer to the telephone summons. He was shocked when he found his father dead. He did not know his father had heart trouble. Dr. Ranney kept this from his son and from his wife, who is seriously ill at

her home, 345 Madison Avenue. Dr. Ranney was born in Hardwick, Mass., on June 10, 1848. He graduated from Dartmouth College in 1868, and was one of six brothers who were well known in the medical world in this city. Dr. Ambrose Ranney held chairs of anatomy and nervous disease in various colleges and wrote a good deal on medical subjects. He married Miss Marie Celle in 1876. Some of the medical books which he wrote are: "Essentials of Anatomy," "Applied Anatomy of the Nervous Systems," "Treatise on Surgical Diagnosis," "Practical Medical Anatomy," "Lectures on Nervous Diseases" and "Electricity in Medicine." He was a member of the Academy of Medicine and other medical societies, as well as a member of the Union League and the New York Yacht clubs. Dr. Ranney was well known in amateur billiard circles. He was a skilful player, and was prominent in the promoting of big tournaments held at the Knickerbocker Athletic Club. Foss, Mullen, McCreery, now dead; McKee, Threshie, Smith, Sigourney, of California, and other amateurs of note competed in the tournaments which he helped to arrange. He was a great lover and student of the game, and never missed a tournament if he could help it. Only this week he took in several games of the tournament in progress at the Liederkranz. Dr. Ranney also was a yachtsman. He owned the auxiliary schooner Planet.

SOCIETY PROCEEDINGS.

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.¹

THE thirteenth meeting of the Society for Experimental Biology and Medicine was held in the Physiological Laboratory of Columbia University, at the College of Physicians and Surgeons, on Wednesday evening, October 18, 1905.

The President, Edmund B. Wilson, in the Chair.

Members Present.—Adler, Auer, Brooks, Burton-Opitz, Calkins, Dunham, Emerson, Ewing, Field, Gies, Hiss, Jackson,² Lee, Levene, Levin, Lusk, Meltzer, Meyer, Murlin, Noguchi, Norris, Park, Richards, Salant, Sherman, Sweet, Torrey, Wadsworth, Wilson, Wolf, Woodworth, Yatsu.

Members Elected.—Carl L. Alsberg, S. P. Beebe, R. H. Chittenden, P. M. Dawson, W. J. Elser, G. M. Meyer, Philip Shaffer, Douglas Symmers, L. L. Woodruff.

ABSTRACTS OF ORIGINAL INVESTIGATIONS.³

A Fatigue Wheel.—By Frederic S. Lee.—The author demonstrated a wheel designed for fatiguing mammals by means of voluntary muscular work.

Mutation in the Evening Primrose, *Onagra biennis* (L.) Scop., with Demonstrations.—By Elizabeth Billings and Frederic S. Lee.—Culture experiments by the authors confirm MacDougal's discovery of a narrow-leaved mutant of this species. From purely pollinated seed obtained by MacDougal and Britton from a wild plant growing at the New York Botanical Garden four hundred and ninety-nine seedlings were obtained, of which three belonged to the narrow-leaved type. It is possible that a second mutant was found, but further observations are needed to confirm this. The species here studied is not the *Onagra biennis* studied by de Vries.

¹ Proceedings reported by the Secretary, William J. Gies, Ph.D., of New York.

² Non-resident.

³ The authors of the communications have written the abstracts. The Secretary has made occasional abbreviations in some of them.

Influence of Thyroid Feeding and of Various Foods and of Small Amounts of Food Upon Poisoning by Acetonitril.—Reid Hunt (Presented by Alfred N. Richards).—One of the current theories of the functions of the thyroids is that these organs neutralize certain poisons occurring in the body; these poisons are purely hypothetical and, so far as the author is aware, no one has yet reported experiments in which it has been shown that the thyroid can render a poison harmless. In the present experiments it was found that mice, to which thyroid had been fed for a few days, were markedly resistant to acetonitril; such mice recovered from the effects of ten to eleven times the ordinarily fatal dose of acetonitril. No such increased resistance to hydrocyanic acid or nitroprussiate of soda was caused by the thyroid feeding. Thyroidectomy had an effect the opposite to that of the thyroid, *i.e.*, it increased the susceptibility of mice to acetonitril, but this effect was not greater than that of dried normal blood and was less than that of peptone. Feeding with parathyroids had an effect the opposite of that of thyroid, *i.e.*, it caused the mice to become more susceptible to acetonitril; the effect, however, was much less marked than that of the thyroid. Potassium iodid increased the resistance of mice to acetonitril, but the extent of this action was not at all comparable with that of the thyroid.

In other experiments it was found that a proteid diet (ham and cheese) caused an increased susceptibility of mice to acetonitril; a carbohydrate diet (rice and dextrose) increased the resistance to this poison. As a rule it required about four times as large a dose to kill the animals that were fed on a carbohydrate diet as it did to kill those fed on a proteid diet. Animals kept on a very limited diet also showed a marked resistance to acetonitril; in most of such experiments it required about three times as much acetonitril to kill as was necessary to accomplish the same result on animals which had been kept on a normal diet. These animals showed no increased resistance to hydrocyanic acid. The experiments are being continued.

A Case of Spirochætal Infection in Man, with Demonstrations.—Charles Norris.—The author's object in presenting this case was to give the members of the society an opportunity of seeing the spirochætes under the microscope.

He did not enter upon the clinical history of the case, which occurred in the service of Dr. Carlisle, of Bellevue Hospital. In July of this year the patient shipped as an assistant steward on the "Denver," of the Mallory Line, and stayed five days in Galveston, sleeping on board, and returned on the same steamer to New York. Two days later he was taken with a chill, accompanied with fever, prostration and pains in the bones. On admission he had a temperature of 102.4° F. The fever continued for two days. After four days of normal temperature there was a rise of temperature to 105, which was followed by a period of apyrexia for ten days, when he again had a relapse. At that time the examination of the blood by Dr. Heitlinger showed the presence of a few spirochæta. Ten days later there was another relapse and rise of temperature, associated with the presence of spirochætes in the blood. Inoculation of a monkey with the blood containing the organisms gave rise to an infection with the presence of spirochæta. The monkey has had three relapses thus far, with rise of temperature, and the presence of spirochæta in the blood. Two

additional monkeys have been infected with the blood of the first monkey.

The case reported is of interest from many points of view. It appears to be the first case reported in this country of spirochætal infection, verified by microscopical examination of the blood. Another case, it is said, has been recently observed in one of the hospitals of this city.

The research work of the past few years upon the tropical diseases of man and animals has brought to light, especially in South Africa, the discovery of the etiological agents of various hitherto little understood diseases.

Obermeier, in an epidemic of relapsing fever in 1868 in St. Petersburg, was the first to discover the presence of spirochæta in the blood of patients suffering from so-called relapsing fever. The observation, however, was not published until five years later. To Obermeier belongs the credit of having first demonstrated the so-called Contagium Vivum of infectious diseases in man. The association of spirochæta with another infectious disease was made by Sacharoff in 1890; he demonstrated the etiological connection of the *Spirochæta anserina* to the spirillum fever or septicemia of geese. In recent years other spirochæta have been described in connection with disease processes. Thus, A. Theiler has described what he calls La Spirillose du bœuf, caused by a spirochæte which is found in the blood, where it produces an anæmia, being present principally among cattle in bad condition. Like the *Piroplasma bigeminum*, it lives in the blood of immune cattle, as the disease has been inoculated with the blood of such cattle. The disease is conveyed through the agency of the blue tick, which is the intermediate host. Like the *Piroplasma*, the infective agent passes into the egg and is inoculated by the larvæ. He believes the *Spirochæta* is a parasitic protozoon.

Two English observers, Dr. Todd and the late Everett Dutton, have found that the tick fever, or at least some cases of tick fever, are associated with the presence of spirochæta in the circulating blood. They believe that tick fever is clinically identical with relapsing fever, and that it has for a pathogenic agent a spirochæta which they consider probably identical with the spirochæta of relapsing fever, as described by Obermeier. They believe that a tick, the *Ornithodoros moubata*, transmits the spirillum from animal to animal, since they have conveyed the disease to a monkey by a tick, and they have evidence that the young ticks, after their first feeding, bred from infected mothers, are able to transmit the disease. They have not been able to trace the spirilli in infected ticks further than the stomach and malpighian bodies. In the light of Marchoux and Salambeni's work upon the transmission of the spirillum disease of fowls by ticks, Ross considers it probable that the disease in man is also inoculated by infected ticks.

It is unnecessary to enter at this time into the discussion of the protozoon nature of this interesting group of organisms, except to recall that Schaudinn considers that there is little doubt that the spirochæta of relapsing fever and of the septicemia of geese will be shown to be trypanosomes, and hence unrelated to the bacteria. Novy and McNeal, it will be remembered, have shown in a communication to this society (Proceedings, Vol. II, p. 23) that Schaudinn's interpretation of what he has seen is subject to grave doubt. The spirochætal forms of the

trypanosomes depicted by Novy and McNeal have not the slightest resemblance either to the organisms of this case or to Obermeier's or Sacharoff's spirilli, as shown by the photographs of the latter. The question as to the identity of the organism of this case to that of the spirillum of Obermeier cannot be settled offhand. On account of the great variety in the clinical symptoms of the reported cases of relapsing fever observed during the epidemics it is perhaps unreasonable to draw any conclusions either for or against the identity of the organism of this case to that of relapsing fever.

To settle this question, morphology gives little help. Although the organism of this case resembles the descriptions of the morphology as well as the photographs of the spirillum of Obermeier practically in all respects, it must be remembered that the spirillum of geese is strikingly similar to that of Obermeier, and yet in the animal reactions the anserina may be sharply differentiated from that of Obermeier, as it is not infective for monkeys.

The organism of this case, like Obermeier's is infective for monkeys. The following differences have, however, been noted: The disease transmitted to the monkeys inoculated by the author seems to have been much milder than the experimental spirillum infection of those animals, as reported by various observers. Relapses in monkeys have rarely been noted; by one observer in one out of eight monkeys. Other observers seem never to have observed relapses. In the author's experience three monkeys have all had relapses, the first Rhesus having already had three.

Dr. Ewing has also called the author's attention to the fact that the spirochæte of this case, as seen in the blood of the inoculated monkeys, as well as in the human blood, is similar to the *Spirochæta refringens*.

Such a case directs attention to the probability of mild spirochætal infections, more or less constantly occurring, in sailors or travelers coming from southern climates into the Port of New York. The author also called attention to the possibility that infection may be communicated from person to person through the bites of ticks and bed-bugs and through wounds.

The Chromosomes in Relation to the Determination of Sex in Insects.—Edmund B. Wilson.—See *Science*, 1905, xxii, p. 500 (October 20).

Experimental Hepatic Cirrhosis in Dogs from Repeated Inhalations of Chloroform.—C. A. Herter and Wm. R. Williams.—The difficulty of inducing pronounced interstitial hepatitis in dogs by means of poisons makes it of interest to report the well-defined results obtained as a consequence of repeated inhalations of chloroform vapor. Experiments of this character were made upon three dogs. In one instance the animal received chloroform three times a week on eighteen occasions, the inhalations being continued for one hour. In six subsequent inhalations the duration of the narcosis was one and one-half hours. The duration of the entire experiment was about eight weeks. The liver everywhere was found to be the seat of an abundant, richly cellular connective tissue growth between and into the lobules. The bile ducts were proliferated and the liver cells showed much fatty and hyaline degeneration. In two other dogs a similar experiment was carried out with the exception that in these instances a highly satisfactory control was secured by first removing a small portion of normal liver

for subsequent comparison with the damaged liver. In one of these dogs the inhalations were given eighteen times in about six weeks. The animal lived somewhat longer than five months and showed a well-marked though not extreme cirrhosis. The third dog was narcotized forty-nine times and lived about eight months. The changes in this instance were perfectly distinct, but less advanced than in either of the other animals mentioned.

The liver tissue from the first dog was subjected to an analysis which showed a distinct fall in the normal percentage of the arginin constituent of the proteid molecule. Similar analyses indicate that the arginin yield from proteid may fall rapidly after even very short exposure to toxic influences, and these results, indicating early damage to living protoplasm, give much force to the contention that the connective tissue overgrowth in these cases of hepatic cirrhosis is secondary to changes in the chemical constitution of the liver cell. A further feature of interest is the fact that in two of the dogs the liver cells contained little fat at the time of autopsy. Finally, it may be mentioned that although a considerable loss in weight was observed in the dogs during the period of repeated narcotization, this loss was subsequently recovered in spite of the persistent cirrhotic changes.

These observations open the question whether the fatty and parenchymatous degenerations of the liver, which in some cases follow narcosis by chloroform in the human subject, may not occasionally pass on to interstitial cirrhosis—a single narcosis in man being sufficient to induce the primary damage to the protoplasm of the liver cell.

Color Sense in Different Races of Mankind.¹—R. S. Woodworth.—The evolution of the color sense is very imperfectly understood. Scarcely any direct evidence is at hand regarding the color sense of animals, though some indirect evidence that various classes distinguish colors is afforded by the facts of protective and attractive coloration.² We do know from human experience that there exists a form of color vision (red-green blindness) which is less complete than the usual human type, and as it appears not to be pathological it may be, as has been suggested, a reversion. In the absence of sub-human data it is of some value to ascertain whether those races of mankind which seem to represent the more primitive stages in human development are specially subject to color-blindness. The results of various authors go to show that other races are perhaps even less subject to it than the white race. Some previously untested races were examined by the author in association with Mr. Frank G. Bruner, under the Anthropological Department of the St. Louis Exposition. Of 252 adult male Filipinos (including Christians and Moros) 14 were red-green blind, or 5.6 per cent.; of 75 males of the "wild tribes" of the Philippines (Igorots, Tinguianes and Bagobos) 2 were red-green blind, or 2.7 per cent.; of 13 male Negritos, none was color blind. Special interest attaches to the Negritos, as they probably represent a more primitive type of man than has previously been tested in this way; and though the individuals examined were too few in number to enable the author to establish the percentage of color-blindness among them, the absence of color-blindness from the 13 males tested (as well as from

¹ See Grant Allen: *The Color Sense, Its Origin and Development*, 1879; W. A. Nagel: *Der Farbensinn der Tiere*, Wiesbaden, J. F. Bergmann, 1901.

the women) shows certainly that color-blindness is not universal among them, and very likely not more prevalent than among more developed races. On the whole a negative conclusion is warranted as to the suggestion that the color sense has developed, within human history, from anything approaching red-green blindness.

Quite a different hypothesis has been advanced by certain anthropologists from a study of the color names of primitive languages. While all languages have names for red, and most of them also for yellow, comparatively few have definite names for green, blue or violet. Even in European languages the names of these latter colors seem to be a rather recent acquisition. The suggestion is that color vision was first developed for the red end of the spectrum; the rest remaining colorless at first, and only gradually taking on the appearance of green and blue, and that this development has occurred during human history. In testing the natives of Torres Straits, who have no name of their own for blue, Rivers obtained a certain amount of evidence in favor of this view, in that these people were somewhat less sensitive to faint tints of blue than Europeans, though rather more sensitive to red. As the Filipinos also have no native words for green, blue and violet, the authors tested them as to their power of discriminating these color. The tests employed called for the matching of dark shades of several colors with pale tints of the same. Colored papers were used; the tints were spread out in spectral order, and each dark shade was to be matched with the tint which it agreed in color. The authors found that the Filipinos, and indeed all other races examined, were inferior to whites in this test; but it was impossible to detect any special deficiency in the greens, blues and violets. These colors were relatively as well matched as the reds, and better than the yellows. Nor was there any tendency, except among the Igorots, to confuse blue, green or violet with neutral gray. The Negritos did better than many more advanced races.

The results obtained by the author are thus opposed to the view that the color sense has developed within human history from a more primitive type in which only the red end of the spectrum appeared as colored.

The Practical Concentration of Diphtheria Antitoxin.—R. B. Gibson.—The Department of Health of New York City has recently placed on the market an antitoxin for diphtheria prepared by a concentration of lower grades of serum. The author described the method of its preparation.

The methods which have been proposed for the purification of concentration of antitoxins are, for the most part, peculiar and tedious ways by which the whole or a portion of the globulins are separated from serum or milk. Evaporation and freezing have been tried, but the general use of such methods has not been continued. Pick states that by the isolation of his soluble or high-ammonium sulfate fraction it is possible to concentrate the protective properties ten to fifteen times. Though superficially the most applicable, Pick's method is open to certain objections. Considerable quantities of antitoxin may be carried down with the non-protective fraction on third saturation of the serum with ammonium sulfate. Such a manifold concentration is also not practicable.

An artificial concentration can best be effected, for the present at least, by preliminary isolation of the antitoxin globulins; on this procedure is based the

plan of the following method, which has proved fairly successful.

The serum is precipitated with an equal volume of saturated ammonium sulfate solution and the precipitate extracted with a solution of saturated commercial sodium chlorid. The antitoxic globulin is easily dissolved in the chlorid solution. The non-soluble globulin settles to the bottom on standing. After filtering, the NaCl solution of the antitoxic globulin is precipitated by the addition of a half volume of saturated ammonium sulfate solution, or better still, with acetic acid in the usual way. The filtered precipitate is pressed as dry as possible with paper and dialyzed in parchment a few hours. Its solution is then neutralized and dialyzed again in running water. After two or three days' dialysis of the neutralized solution of the proteid precipitate, sterilization is accomplished by a double filtration through a Berkefeld filter. Before filtration a quarter to one-half of a per cent. of sodium chlorid is added, and toluol, a preservative, is used. The strength of the filtered product is ascertained. It is tested bacteriologically, injected into animals and finally actually administered in the Department of Health hospitals before distributing.

By this method almost all the ammonium sulfate is removed before dialysis, and the additional acid precipitation gives a purer product. Dialysis is quicker under these circumstances than when the sulfate alone is employed to effect precipitation. The antitoxin is practically all recovered, and a concentration of several times the original potency is easily and constantly obtained. The sodium chlorid separation is sharp, the two groups of proteids showing essentially different physical characters as precipitates. The final product is somewhat viscous, faintly opalescent and colorless, or slightly tinged with hemoglobin. Dried at low temperatures, a beautifully transparent and entirely soluble scale antitoxin is obtained. Large quantities of serum can easily be worked over in this way at comparatively small expense.

Tests show that the artificially concentrated antitoxin, kept in small vials in an icebox, preserves its potency as well as or even better than the ordinary antitoxic serum. Therapeutically, the comparative results obtained are identical. Local irritation, rashes, etc., seem to be less frequent and severe when the refined antitoxin is administered. Hundreds of injections have been given in the Department hospitals, yet no infection for which the antitoxin is responsible has resulted.

The method of separation is possible and practical largely because of the extreme solubility of the antitoxic globulins and the remarkable retention of this character as compared with the behavior of other proteids. The antitoxic properties follow this soluble globulin at every step, and are lost or lessened only by such agents as can considerably modify or actually destroy the proteids.

On the Effect of Magnesium Salts Upon the Excitability and Conductivity of Nerves.—S. J. Meltzer and John Auer.—In their communication to this society (Proceedings, Vol. II, p. 81) on the anesthetic effect of magnesium salts after subcutaneous injections, the authors stated that they made several series of experiments on the physiological and pharmacological effects of these salts, and that all their experiments had demonstrated a common result, namely, that magnesium salts produce a profound effect upon the nervous system, and that this effect

is invariably of an inhibitory character. In their recent experiments the authors applied solutions of magnesium salts to the sciatic, pneumogastric, depressor and sympathetic nerves of rabbits. Numerous applications of the magnesium salts to the various nerves failed to produce, in any instance, a phenomenon which could be interpreted as an excitation, but in all cases there was produced sooner or later a profound inhibitory effect upon the conductivity of the nerve under experimentation. After application to the sciatic nerve, the conduction of motor and sensory impulses was manifestly inhibited; a strong stimulus applied below the block caused strong contractions of the muscles of the thigh, but no pain; when applied above, pain, but no contraction was caused. In experiments on the depressor, stimulation on the distal side of the block failed to produce a fall of blood-pressure. Applications to the sympathetic blocked the conductivity, so that strong electrical stimulations applied to the section of the nerve exposed to the influence of the solution, or distal to that section, failed to cause a constriction of the ear vessels or a dilatation of the pupil.

Instructive results were obtained in the experiments upon the vagi. As is well known, stimulation of the central cut end of the vagus produces an unmistakable effect upon respiration, while stimulation of the peripheral cut end causes a standstill of the heart and a contraction of the oesophagus and the cardia. When a section of about 2 to 3 cm. of an intact vagus was exposed for some time to the influence of a solution of a magnesium salt, stimulation above the block affected the respiration, but not the heart or the oesophagus, and stimulation below affected the function of the last-named organs, but not that of respiration.

Applications to the vagus nerves enabled the authors to study the blocking of *normal* impulses. When applied to one nerve after the other had been cut, or when applied to both intact nerves, the respirations slowed up perceptibly after a while, as happens after cutting both vagi; and also, after spontaneous or induced acts of deglutition, no contractions of the oesophagus or cardia followed.

These effects were obtained with hypertonic as well as with isotonic, and even with strongly hypotonic solutions. The weaker the solution the longer it took to establish a complete block; ten to thirty minutes was about the average time. This blocking of the conductivity could be completely removed when the nerve was washed out with Ringer's solution. When hypotonic solutions of magnesium salts were used the conductivity would often soon return without washing with Ringer solution, if simply the application of the magnesium solution was not renewed. After the application of the strongly hypertonic solutions for two or three hours the conductivity would not return for twenty-four hours or longer, sometimes not even after washing with Ringer solution, as was observed in experiments on the sciatic and on the superior cervical ganglion. Thus far the experiences of the authors indicate that the conductivity is finally restored in all cases.

Injury to Dr. Dufloo.—Dr. A. L. F. Dufloo, of New York City, was half strangled and robbed by two thieves last Thursday in the vestibule of his own apartment. Dr. Dufloo is sixty-five years of age and in active practice. He was badly cut, but not seriously injured.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS AT PARIS.

(Continued from Page 1001.)

Acid-Fast Bacilli.—Dr. Paul Courmont contrasted these with the bacilli of tuberculosis. He said that the differences between a typical culture of tubercle bacilli and the acid-fast bacilli was very clear. The differences between homogeneous cultures of Koch's bacillus and the acid-fast bacilli, however, are much less marked. He had been unable to agglutinate the acid-fast bacilli by serums obtained from the homogeneous infections, and again the agglutination of many homogeneous tubercle bacilli did not occur with the same serums. It is possible to diminish the virulence of homogeneous cultures until they are as inactive as cultures of the acid-fast organism. No essential difference exists. It was impossible to prove that acid-fast bacilli were not saprophytic tubercle bacilli, or that the former did not under certain conditions become pathogenic.

Researches on Experimental Infection by the Paratubercle Bacillus.—Professor J. Canatacuzene gave the results of his researches which showed that in young cultures of acid-fast bacilli a number of units were found which took a blue color after staining with fuchsin and methylene blue. The number of these units diminished with the age of the culture. He described his technic in detail. He found that the use of pure acetone as a decolorizer after fuchsin gave very clear specimens.

"Soil" as a Factor in Tuberculous Conditions and the Methods of Treatment.—Professor Albert Robin urged that in welcoming sanatorium treatment, the pendulum be not allowed to swing too far. He considered the individual as the chief etiological factor. "Respiratory exchange" in tuberculous subjects showed a marked increase, and this, he considered a defensive reaction. He argued that respiratory exchange was increased in the offspring of tuberculous parents and in conditions predisposing to tuberculosis. Tuberculous subjects require more calories than healthy individuals and must have more oxygen. Reduction of respiratory exchange may be accomplished by the administration of cod-liver oil, arseniate of soda, cacodylate of soda and adrenalin. Anti-bacterial medicaments are an important element in the treatment, and every effort must be made to improve the soil.

Tuberculous Bacillemia.—Dr. A. Jousset said that in chronic tuberculosis of the lungs only exceptionally did the blood contain bacilli, but in acute and subacute stages they were often present in large numbers. Most commonly this occurred in caseous pneumonia. Clinically, bacillemia manifests itself by fever, rapid breathing and albuminuria. The virulence of these bacilli is inferior. He agreed with Dr. Gary that swallowed bacilli are absorbed by the intestines intact, but generally with lowered resistance.

Pathogenic Properties of Certain Acid-Fast Bacilli.—Dr. Rodet and Dr. Galavielle concluded that the Timothy bacillus was certainly endowed with some pathogenic power. They have been able by passing it through the animal organism to make it approach in characteristics the tubercle bacillus.

Thyroid Insufficiency as an Etiological Factor in the Pathogeny of Tuberculosis.—Dr. Lorand read a paper on this subject. He said that causes affecting the proper action of the thyroid gland favored the development of tuberculosis. This was

shown in man and animals after extirpation or degeneration of this gland.

Dr. Nathan Raw presented a report upon the progress of prophylactic work in Great Britain.

At the closing ceremony, Professor Von Behring made a statement in regard to his new curative principle in the treatment of tuberculosis. He said in part: "This principle is based on the impregnation of the living cells of the organism by a substance emanating from the virus of tuberculosis which I term TC. When the TC has become an integral part of the cells, and is metamorphosed by those cells, I designate it by the formula TX. In the bacillus of tuberculous the TX, or, more precisely, the TC pre-exists as an agent endowed with a great number of extraordinary properties. This agent fulfils in the tubercle bacillus the function of a formative substance. It also possesses fermentative, and especially catalytic, qualities. This agent has a selective action with regard to other substances, a phenomenon which has been termed 'adsorption.' Moreover, under certain conditions it possesses assimilating qualities. In a word, it represents the 'quasi-vital principle' of the bacilli. In my opinion in the process of immunizing bovine animals against tuberculosis the TC of the bacilli is freed from other substances. It exercises a symbiotic action in the interior of the tissues, especially upon the cellular elements which have their origin in the germ centers of the lymphatic tissue. The presence of the TC is the cause, on the one hand, of hypersensitivity to Koch's tuberculin, and, on the other, of the protective reaction against tuberculosis. . . . I have endeavored energetically and unweariedly to spare the organism the work always long and dangerous of the elaboration of the TC. In order to free TC from the substances which hinder its therapeutic action it is necessary to distinguish three groups of bacillary substances: (1) A substance soluble only in pure water, possessing a fermentative and catalytic action. From this substance, which is soluble in water, are derived the toxic elements of Koch's tuberculin. This substance has all the chromophilous, physical and chemical qualities of 'volutine,' described by our Marburg botanist Arthur Mayer. I call this substance TV. To convey an idea of the toxic power of TV I may say that a gram of this substance in a dry state is more powerful than a litre of Koch's tuberculin. (2) A globulin soluble only in a neutral salt, for example, chloride of sodium at 10 per cent. This substance is named by me TCL. It also is toxic after the manner of Koch's tuberculin. (3) Several non-toxic substances, which are soluble only in alcohol, ether, chloroform, etc.

"When the tubercle bacillus has been freed from these three groups of substances, there remains only a body which I designate as 'rest bacillus.' The rest bacillus still possesses the form and the staining reactions of tubercle bacilli. By means of suitable preparations it can so be modified as to become an amorphous substance, directly absorbable by the lymphoid cells of the guinea-pig, rabbit, sheep, goat, bovine animals and horses. The amorphous substance is elaborated and metamorphosed by the lymphatic cells of these different animals, and these cells become oxyphile or eosinophile. The condition of immunity of the organism develops contemporaneously with the metamorphoses of the cells under the influence of the TC. A fundamental fact is that the TC, although it is a substance that can-

not be reproduced, possesses the power of giving origin to tubercle. The tubercle thus produced does not undergo caseation and never softens. It corresponds exactly to 'Laennec's granulation tuberculeuse.' Under certain conditions the TC can also produce the 'gray infiltration' and the 'gelatiniform infiltration' of Laennec.

"By means of experiments on different mammals I have been able to satisfy myself that the TC, pre-existing, as I have said, in tubercle bacilli, can be elaborated *in vitro* in such a manner as to be capable of being applied as a remedy which can be employed without danger to the treatment of disease in man."

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Stated Meeting, held October 9, 1905.

Exhibition of Medical Cases.—By Dr. Barker.—

Case I.—Male, twenty-nine years old; weaver by trade, came to the hospital complaining of "rheumatism and soreness in feet and thighs." His family history and his personal history before the present illness were negative. He had a moderate alcoholic history; denied lues and gonorrhea. Two years before admission he had a sharp pain in his lower abdomen running to end of penis, and with it a hematuria which lasted two or three months. About eighteen months ago he had an iritis; later, a soreness in the balls of his feet passing up his legs and thighs to his neck. Nine months ago he stopped work. On examination his deep reflexes were exaggerated and a slight patellar clonus present, but no disturbed sensations. Babinski's and Oppenheim's signs were negative. On pressure on bottom of calcaneum about attachment of long plantar tendon below plantaris Bascia there was marked tenderness to which patient ascribed his lameness. X-ray plates showed a spicule of bone on each heel in front of tuber calcaneum. These were secondary to the old urethritis.

In discussion, Dr. Baer told of six cases from his clinic in the last three years, from two of which he got gonococcus in pure culture, from two the stained organism in section. One case was not operated on, and one showed no organisms. These cases were all bilateral in males and within one year after urethritis.

Perichondritis.—*Case II.*—Male, twenty-seven years of age, Pole, cigarmaker; complained of "rheumatism and swelling in the neck." Family history, negative. Denied lues, but three years ago had chancroid. August of this year he had pain in right shoulder and right hip, the shoulder being hot, swollen and tender. Pain shifted to right ankle, left knee and left metatarsophalangeal joints. Patient then noticed a swelling of his Adam's apple, but it was associated with no dysphagia or bone changes; also, there was tenderness in was negative. The swelling of Adam's apple showed on examination a tenderness in the right thyroid cartilage extending down over the cartilages of the trachea. The condition suggests a perichondritis following gonorrheal infection.

Case III.—Male, fifty-three years of age, bricklayer; complained of weakness and great thirst. Family and personal history, unimportant. His present illness dates from three months ago. Six weeks ago noticed he was passing large quantities of urine and had lost weight and strength. On examination patient's entire body surface was deeply pigmented. There was some urticaria, and scattered over the body were areas of erythema. A blood-count showed, reds, 5,304,000; whites, 9,200, and hemoglobin, 94 per cent. The urine

showed 11 per cent. of sugar, glucose; the mucous membranes were not pigmented. The liver was very much enlarged, reaching 12 cm. below the costal margin; the spleen was easily palpable at edge of left hypochondrium. The case showed a general pigmentation or bronze diabetes with hypertrophic cirrhosis of the liver and a large spleen. Pathologically these cases show large quantities of pigment in the epithelial cells of liver and pancreas. Both hemosiderin and hemofuchsin are greatly increased. The livers have been found to have as high as 55 per cent. of iron in their ash. The diabetes is a secondary condition due to the increase of the connective tissue in the pancreas. Most of the cases reported are in males of forty to fifty years.

Inversion of Uterus.—By Dr. J. Whitridge Williams.—*Case I.*—Woman, twenty-four years old; married two years; miscarriage at sixth month fifteen months before. Went to term this time; labor was normal through first and second stages. The Credé method being ineffectual in removing the placenta it was removed manually. The patient was very much shocked, but there was no hemorrhage. Twenty-four hours later Dr. Williams found her radials pulseless, heart rate 168, and the patient bathed in sweat. Palpation disclosed a firm hard mass in abdomen, and on vaginal examination the pelvic cavity was found filled with a large round mass with ragged edges. Above the tumor mass was the firm hard cervical ring through which the uterus had inverted. The ring was dilated manually, and the uterus, being reverted, promptly retracted and forced the hand out. The patient's condition improved rapidly, pulse was 100, and she was out of danger in a few hours.

Case II.—Girl, twenty-one years of age; primipara delivered by forceps and placenta removed manually. Seeing her in consultation on the third day her pulse was 140 and her uterus inverted, the cervix was hard, about the size of a dollar, and had the inverted uterus gripped around the neck. There was marked pressure on the bladder, which was greatly distended with bloody urine. Being unable to dilate the hard cervix laparotomy was done, the cervix incised and with fingers in the vagina the uterus was reverted, the patient making a satisfactory recovery. Inversions of the uterus mostly occur in primipara attended by ignorant midwives, and are caused by traction on the cord or by too great pressure on the uterus from above.

Thoracic Aneurisms.—By Dr. Baetjer.—The X-ray has thrown most light on the chest and its diseases. We can now practically make positive and negative diagnoses. Both the radiographic and fluoroscopic methods are used in examinations. The routine in this hospital is to make a physical examination, first to see that there are no abnormalities, then placing the tube on a level with the third rib twenty-four inches from the patient's back, examine the chest from the front. The patient is turned around and examined in the same way from the back, and then sidewise by transverse illumination. In this way we cannot only get location of aneurism, but we can see whether or not it is pedicled. The normal fluorescent screen reveals the dark line of the spine and sternum about two inches wide, the shadows of the pulsating heart and of the diaphragm. Any shadow to right or left of sternum is abnormal and may be due to enlarged glands, new growth or aneurism. The shadow of a new growth is darker and more hazy than shadow of aneurism. Dilation of the aorta is positive; when in pulsation the aorta disappears behind the sternum. To make a diagnosis of aneurism the shadow must persist between pulsations.

Regular Meeting, held October 23, 1905.

Cystic Kidney.—Dr. R. I. Cole presented a man, forty-one years; complaint, "pain, shortness of breath and weakness in back." He did not know date of onset. Fifteen years ago, after rowing, he noticed an enlargement of his abdomen, but it gave him no discomfort. Eight years ago a physician told him he had albumin in his urine. Two years ago his color changed; he became cyanosed, and there was pigmentation over his forehead and cheeks. On admission to the hospital the patient showed some cyanosis, a moderate grade of arteriosclerosis and signs of cardiac weakness, but no murmurs. His abdomen was distended, with distinct bulging in the flanks. As soon as the ascites had decreased, there was made out a large mass in the left flank, deep in the abdomen. It could be lifted forward from behind and had an irregular surface with prominences, one of which resembled a ball 3 or 4 cm. in diameter. On the right side, in a similar position, is a like tumor reaching down into the pelvis. It is far back in the abdomen and can be lifted forward. It also has irregularities. The patient shows symptoms of cystic kidneys. He has signs of cardiac weakness. Urine of low specific gravity, some albumin and casts. While in the hospital the swelling of his legs and ascites disappeared, and his shortness of breath improved. Up to this time he had never had blood in his urine, but a few days after his discharge from the hospital he returned with some bloody urine which he had passed. The patient also shows a pigmentation over forehead and cheeks, in addition to the cyanosis which is constantly present. The hematuria may be due to rupture of small vessels between the cyst walls. The signs of cystic kidneys are, signs of large bilateral tumors, signs of cardiac weakness, signs of chronic nephritis and hematuria. Three of Dr. Osler's four cases were recognized during life.

Pulsating Empyema.—*Case I* was admitted to the surgical wards in April, complaining of "trouble with his lungs." He had had an attack of pneumonia in December, which lasted for five or six weeks, and left him weak and losing strength. Ten days before admission he had marked exacerbations of pain and weakness, and continued to grow weaker. He was aspirated and a small amount of purulent fluid removed. The entire left side of the chest was bulging, and there was dulness in the supraclavicular fossa and flatness through the entire left chest below. There was an impulse in the third and fourth interspaces to the right of the sternum. The whole front and axilla of the left chest showed a visible pulsation, forcible, diffuse and systolic in time. The chest was opened from behind and a large amount of pus removed. The patient left the hospital in good condition. *Case II* was admitted in January, complaining of "shortness of breath." He had signs of a pleural effusion on the left side. The chest was aspirated and at different times eleven, twelve and thirteen hundred c.c. of fluid were removed. Tubercle bacilli were demonstrated in the fluid. The patient improved and left the hospital practically well in March. He returned in June with shortness of breath and an irregular fever. A needle was inserted and a small amount of bloody fluid was removed, which contained many mononuclear and but few polymorphonuclear cells. About the first of October there was a bulging in the left axilla; October 17 there was a definite area of pulsation, which tracings showed to be systolic in time, in the third and fourth interspaces outside the mammillary line. Cardiac dulness reached 8 cm. to right of midsternal line. There was tympany in Traube's space, the dulness reaching only to the fifth rib. It was thought at first to be an

encapsulated tuberculous pleurisy, but aspiration showed a purulent fluid in which polymorphonuclear cells formed 94 per cent. of the total cells. A rib was removed from the back and the cavity drained. The patient is in good condition. Dr. Sailer recently went over the literature and found ninety-seven cases of pulsating empyema reported. Among the earliest reports are the three cases reported, in 1840, by Dr. McDonald, of Montreal, and the cases by Stokes, of Dublin. Twelve of the ninety-seven cases were serous effusions. The probable explanation of the pulsation is that ordinarily the elasticity of the lung takes up the pulsation, but if the lung be held firmly by adhesions, or is completely compressed, the pulsating waves are entirely spent upon the chest wall. To pulsate, the fluid must always be under high pressure.

Congenital Cystic Kidney.—Paper read by Dr. C. H. Bunting.—Cystic kidney is the large polycystic kidney of the French. The first cystic kidney reported, was at the Royal Society in Paris before 1725. The first congenital cystic kidney was reported before 1790. The last summary, made in 1900, gives two hundred cases in adults—ninety congenital and thirteen in infants. Cystic kidney happens in .15 per cent. about the same proportion in each sex, and may be found in subjects from premature or stillborn to old age. There is a remarkable family tendency. Virchow reports cases in which four of six children were affected. Singer reports a family in which the first, fourth, seventh, tenth and thirteenth children had bilateral cystic kidneys, the other children being normal. The condition also appears in the second generation, though there is only one case reported of crossed inheritance, all the others being from father to son or mother to daughter. The kidneys of the new-born may be very large; cases being reported in which the pair weighed over a thousand grams. In the adult they have weighed over five thousand grams. Among the sections shown were gross specimens of kidneys from two children of the same mother. In the cortex of these were fine cysts. In the liver the portal surfaces had the appearance of an oak leaf. Through the medulla there was marked dilatation of the ducts, some of them divided up into finger-like processes. There were mitotic figures present. In the liver there was increase in the size and number of the bile ducts. Cystic liver occurs in 20 per cent. of the cases of cystic kidney. In the adult these cysts are lined with flattened epithelium and have a fluid content but no connection with the bile ducts. The theories of formation of cystic kidneys are grouped under four heads: the obstruction theory, new growth theory, malformation in the development, and the group placed between malformation and new growth. Virchow believed at first in the obstruction theory. In 1875 an advocate of the new growth theory claimed that there were outgrowths from the tubules which were solid or tubular and underwent a colloid degeneration. These are analogous to adenocystomata of the ovaries. The malformation theory dates from Kussner who thought there was a failure of collecting tubules to open into the pelvis. The advocates of the fourth theory thought it was a failure of the undifferentiated epithelium to grow in equilibrium. These lesions are of epithelial hyperplasia, which would not be included among new growths; they are adenocystomata. The ducts in the pancreas and liver show the same hyperplastic condition. These cases can show malformations in other parts. Polydactylism, hydrocephalus, harelip, atresia of anus or vagina, rectovesical fistulæ, heart lesions, patent ductus Botalli and many associated defects in the genito-urinary organs have been found in these

cases. The lesion is more nearly related to congenital malformation than to new growth, and we must look in the parents for the cause. Only 10 per cent. of cases are unilateral. Cystic kidneys may be found in all ages from infants to adults of eighty years. As a rule, if there is enough cortex for the person to live for a while after birth, he may live a normal lifetime unless cut off by chronic nephritis. In adults with cystic kidneys there are the same associated malformations and liver conditions. It is very difficult in the adult kidney to make out anything in regard to the pathogenesis or histogenesis on account of the great changes that have taken place.

Regular Meeting, held November 6, 1905.

The President, W. G. MacCallum, M.D., in the Chair.

Anomalous Cardiac Murmur.—Dr. W. S. Thayer exhibited a colored male patient, fifty-seven years old; admitted sixteen times, the first being in 1896. He gave a history of only ordinary children's diseases; lues was denied. On first admission he showed edema of legs, shortness of breath, albumin in urine and dilated heart, which symptoms cleared up under treatment. He had an attack of rheumatism of doubtful nature during the next year. On admission to 1903 his heart was more and more dilated with a systolic murmur at apex. At that admission the apex was in the seventh interspace with a systolic murmur. In the fifth interspace in the parasternal line there was a peculiar murmur of decreasing intensity, beginning after a slight pause after the second sound, and ending just before the first sound. It was in every way similar to a diastolic murmur of mitral stenosis, except for its position. The patient on exhibition had a greatly dilated heart with tricuspid insufficiency, systolic pulsation in veins of neck and in liver. The first sound was replaced by a soft systolic murmur, and the second pulmonic was louder than second aortic. There was no suggestion of aortic valvular disease, and no evidences of a true organic mitral lesion. The murmur was heard in area where murmur from tricuspid ought to be heard best when the blood is flowing from right auricle to right ventricle, but there was nothing that would point to tricuspid disease; besides, murmurs in tricuspid stenosis are very rare. Had there been an aortic lesion, a faint murmur heard in this region, instead of its usual area near the apex, might be considered. The patient has a marked grade of sclerosis. Might not sclerotic atheromatous changes, extending from the aorta to the anterior mitral curtains, cause a slight interference to the passage of blood from the left atrium to the left ventricle by a thickening of the curtain. The sound began with a slight shock. The opening snap of mitral valve from relaxation of ventricle and pressure of blood from above might be caused by such a condition. The snap begins at the beginning of diastole. There was thought not to be mitral endocarditis, but a dilated and hypertrophied heart secondary to arterio-sclerosis. There was a mitral and tricuspid insufficiency due to dilatation of the ring. The murmur was thought to be produced at either one or the other of these valves, most probably the mitral.

Marked Grade of Enteroptosis.—Patient was a black female, aged forty-five years. She had a pulmonary tuberculosis involvement. The abdominal wall was remarkably relaxed. The liver edge was

practically normal. Below it, just below the umbilicus, was a shadow descending on inspiration, with peristaltic waves passing from left to right, which on dilatation proved to be stomach. The stomach was entirely below the ribs, the tympany of the fundus beginning at the costal margin. The right kidney was very movable.

The Significance of Casts in the Urine.—Dr. C. P. Emerson said that cylindruria is the occurrence of casts in the urine in various conditions. *Cast varieties:* epithelial casts are distinctly made up of cells with round nuclei. They are parts of the tubules below the loops of Henle and have lumina which can be seen. In addition to these, but which go under the same name, are hyaline casts with one, two or a few cells with round nuclei. Many of these cells have a perfectly clear protoplasm, though the kidney cells are granular. Those of the first type are rare. They occur in acute nephritis. Those of the second type are common. They can be found in bicycle riders and athletes, as can blood casts, for a ring of red blood cells washed out of the tubule is not uncommon after hard exercise; but the hyaline type with a few blood cells attached occurs in hemorrhagic nephritis. A true pus cast occurs in purulent nephritis, but hyaline casts with pus cells attached are found in athletes. Coarse granular casts are opaque with very coarse granules. They are not translucent, and evidently are pus or epithelial casts gone to pieces. The next stage in the degeneration of these form the waxy casts which are of two varieties, white and yellow, both of which tend to split transversely. The true hyaline cast is faint and watery, and is seen by shutting off the light. It is found wherever albumin is expected, and does not stain by iodine. There is a cast usually called a hyaline, though it is not, which is not so refractile as the waxy casts, that occurs in nephritis or long-standing renal trouble, and stands between the waxy and hyaline groups. Associated with this intermediate group are very translucent fine granular casts. The waxy casts are the modified granular casts. These may be found from a normal kidney in the last few c.c. of urine secreted line type with a few blood cells attached occurs in after death when they were not present before death. Also one can get waxy casts in all states of the urine in the tubules. Fifty casts have large globules of fat in casts made up of cells. In the last five years every case of fatty casts in the Johns Hopkins Hospital was malarial. However, sometimes in nephritis the renal cells will be swollen with fat globules, and all transitions between cells and fatty cast formations can be seen. There may be globules of myelin degeneration in the cells. These do not take osmic acid and may form a true myelin cast. Cases were studied anatomically, in which there had been a clinical diagnosis of nephritis. In cases of chronic passive congestion, where there had been a clinical diagnosis of nephritis, there were no anatomical evidences, though there were all varieties of waxy casts. In cases of cloudy swelling, where there had been all varieties of casts, there were no evidences of nephritis. Cases of fatty kidneys had been diagnosed nephritis. In 109 cases of acute nephritis the diagnosis could not be made, except from the urine, but acute nephritis and exacerbations of chronic nephritis cannot be distinguished by urine alone. In acute parenchymatous nephritis, to make a diagnosis, one must have a history of the patient, a cast picture

and patient under thirty-five years. In chronic interstitial nephritis there were two types, the small white kidney and the small red kidney; the latter due chiefly to arteriosclerosis. In the cases of small red kidney the trace of albumin had been of longer duration than in the small white type, and the casts had disappeared first. In the small white type the albumin cleared up first. Of eighteen cases of amyloid kidney one-fourth had large amounts of urine and albumin, but very few casts. The more acute the attack, the more epithelial blood and pus casts are present. In the chronic attacks these disappear and are replaced by waxy, hyaline and granular casts. These cases can be followed by the casts alone.

Cylindruria, *i.e.*, presence of casts, may be present without albumin, if the urine is examined fresh, centrifugalized and carefully searched. A slight disturbance of the kidneys, *e.g.*, manipulation in some cases of palpation, may make casts and no albumin or the reverse, or both, findable. The cases of chronic nephritis with history of small white kidney, may have casts with no albumin. Of transient cylindrurias there are the class following the use of drugs, *e.g.*, sodium, salicylate, though the casts disappear as soon as the medicine stops. Alcohol in moderate doses will cause cylindruria in over one-half the cases; in others, albuminuria. Ung. hydrarg. also may cause the pressure of casts. Many of the acute diseases, as erysipelas, scarlet fever, tonsillitis and diphtheria, may have symptoms of nephritis, but in some conditions only casts can be found. The point to be emphasized is that the number of cases that show casts if looked for are many, and albuminuria is often present in practically normal urine. Showers of casts may appear in diabetic coma, sometimes without albumin; they appear suddenly. There are no epithelial or waxy casts, but those present are hyaline or purely granular. May get showers in exacerbations in nephritis after diuretics, or, as a terminal, the last two or three days before death. In chronic constipation there may be found a pure cylindruria. It is an inflammatory or irritative process, not a degeneration that causes casts. The greatest number of casts are gotten from kidneys that are but slightly diseased. A most brilliant display of casts can be gotten by the disturbance of a normal cortex in a small granular kidney, and the least number when the cortex is extensively diseased. The more normal the cell, the better its cast-producing quality. The number and kinds of casts are indications of the temporary condition of a normal kidney. The specimen should be centrifugalized and examined carefully immediately after voiding, instead of a 24-hour specimen. Epithelial, blood and pus casts do not have so very much significance. Cells of casts should be studied as to whether they are epithelial cells or pus cells, for these casts are certainly present more often than recorded.

Dr. W. G. MacCallum, in the discussion, said the fact that there is a less abundant supply of casts in the contracted kidney is because the epithelial cells are gone. The active process is in the large kidney where there is a greater mass of degenerating epithelial cells. The large white and the small kidneys should not be so carefully subdivided, for they represent conditions more or less severe in different stages. There should be some uniformity of the casts in acute kidneys and the kidneys in exacerbation.

Demonstration of the Spirochæta Pallida.—Dr. Keidel demonstrated three specimens of *Spirochæta pallida*. He said the organism was found in nearly all lesions of primary syphilis. One of the specimens was gotten from serum from a primary sore; the others from condylomata. They were stained with eosin azure after Schaudinn's methods. The organism is not at all refractile. It is spiral, 4 to 10 microns in length, $\frac{1}{4}$ of a micron thick, with spirals about 1 micron apart. *Spirochæta refringans* can be easily differentiated, from *pallida* by being coarser the spirals being flat, more irregular and undulatory. *Refringans* also stains easier and is more refractile. *Spirochæta pallida*, which may be a protozoan, has not been cultivated on artificial media.

BOOK REVIEWS.

A MANUAL OF MIDWIFERY FOR STUDENTS AND PRACTITIONERS. By HENRY JELLET, B.A., M.D., Gynecologist and Obstetric Physician to Dr. Steevens' Hospital, Dublin; Extern Examiner in Midwifery, Royal University of Ireland; Examiner in Midwifery, Royal College of Physicians, Ireland; Ex-Assistant Master, Rotunda Hospital; Ex-University Examiner in Midwifery and Gynecology, Dublin University. Wm. Wood & Co., New York.

DR. JELLET, in collaboration with several authors, has presented a comprehensive account of the theory and practice of obstetrics, for the most part modern. In the chapter describing fetal development, the formation of the fetal envelopes of the chick is given, but no mention is made of the present-day theory of Sobotta and the observations of Peters, which would strongly suggest that the amniotic sac in many mammals is formed by a splitting of the primitive ectoderm and not by the folds growing up around the embryonic area. In the same chapter the umbilical cord is described as being covered by amnion, a statement which would not meet the approval of most embryologists as most observers now consider the epithelium of the cord to be epidermal, representing a prolongation of fetal skin. The chapter on Asepsis and Antisepsis is of historical and practical interest. The attitude of the author with regard to antiseptic douching is in accordance with American ideas in that no douche should be given without definite indications. The chapter devoted to the phenomena of normal labor is well put together and includes an interesting digression on the Prognosis of Labor. The causes of death from labor are grouped under three heads: Purely obstetrical causes; pre-existing disease of the mother, and accidental causes. Much valuable information is given from the records of the Rotunda Hospital and the statistics of the Registrar-General. In considering the mechanism of normal labor, two positions are described, a right and a left, corresponding to the first and second positions of the German schools. The description is generally clear and accurate. In the chapter on the Pathology of Pregnancy many time-honored theories of eclampsia are given and a number of present-day ideas on the toxemia of pregnancy are presented in brief. The subject of extra-uterine pregnancy is well written. The writer, however, has given the impression that the sole cause of primary rupture of the tube is the distention, while no mention is made of the important part played by the erosion of the tube wall by villi and syncytial buds. The sections on puerperal infections, obstetrical operations and the care of the infant are admirable. The work as a whole is scientific

and practical and merits a place among the best textbooks on the subject.

THE EYE; ITS REFRACTION AND DISEASES. By EDWARD E. GIBBONS, M.D., Assistant Surgeon of the Presbyterian Eye, Ear and Throat Hospital; Demonstrator and Chief of Clinic of Eye and Ear Diseases in the University of Maryland, Baltimore. Volume II. The Macmillan Company, New York and London.

THE first volume of this work which has been favorably reviewed in these columns is devoted entirely to refraction and to a consideration of the optical properties of the eye, and is in many respects an admirable book.

The present volume deals with diseases and operations. It is evident that the bent of the author's mind is toward the part of the subject treated thoroughly and with much individuality in the previous volume. For although the second part is not lacking in excellence, it does not show the same originality and clearness of conception. The chief criticism is that, in places, there is a lack of orderly classification, producing a rather confused and uneven result.

BOOKS RECEIVED.

INDIGESTION. By Dr. George Herschell. Third edition. 8vo, 293 pages. W. T. Keener & Co., Chicago.

DIABETES MELLITUS. By Prof. Dr. Carl von Noorden. 12mo, 211 pages. E. B. Treat & Co., New York.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK FOR 1905. 8vo, 445 pages. Illustrated. Published by the Society.

ABDOMINAL OPERATIONS. By Dr. B. G. Moynihan. 8vo, 694 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

MT. SINAI HOSPITAL REPORTS. Volume IV. 1903. Edited by Dr. N. E. Brill. 8vo, 418 pages. Illustrated. Published by the Hospital.

TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY. Thirty-eighth Annual Meeting. 244 pages. Illustrated. Published by the Association.

CLINICAL METHODS. By Drs. R. Hutchison and H. Rainy. Ninth edition. 12mo, 634 pages. Illustrated. W. T. Keener & Co., Chicago.

A MANUAL OF CHEMISTRY. By Drs. A. P. Luff and F. James. Third edition. 12mo, 556 pages. Illustrated. W. T. Keener & Co., Chicago.

PRACTICE OF MEDICINE. By Dr. J. M. Anders. Seventh edition. 8vo, 1,297 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

MANUAL OF CHEMISTRY. By Dr. W. Simon. Eighth edition. 8vo, 640 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

HYGIENE AND PUBLIC HEALTH. By Drs. B. A. Whitelegg and Geo. Newman. New edition. 12mo, 636 pages. Illustrated. W. T. Keener & Co., Chicago.

LECTURES ON PRINCIPLES OF SURGERY. By Dr. C. B. Nancrede. Second edition. 8vo, 407 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

TRANSACTIONS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION. Twenty-seventh Annual Meeting. 8vo, 360 pages. Illustrated. Published by the Association.

PRINCIPLES OF BACTERIOLOGY. By Dr. A. C. Abbott. Seventh edition. 8vo, 690 pages. Illustrated. Lea Brothers and Company, Philadelphia and New York.

ATLAS AND EPITOME OF DISEASES OF THE SKIN. By Dr. F. Mracek. Second edition. Edited by Dr. H. W. Stelwagon. 12mo, 271 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, DECEMBER 16, 1905.

No. 25.

ORIGINAL ARTICLES.

THE ADAPTATION OF THE PUBLIC TO THE PRINCIPLES AND PRACTICES OF THE PREVENTION OF TUBERCULOSIS.

BY HOWARD S. ANDERS, A.M., M.D.,

OF PHILADELPHIA;

ASSISTANT PROFESSOR OF PHYSICAL DIAGNOSIS, MEDICO-CHIRURGICAL COLLEGE; ATTENDING PHYSICIAN, PHILADELPHIA GENERAL HOSPITAL, TUBERCULOSIS DEPARTMENT.

THE title of this paper does not,—in view of the too obvious facts and evidence to the contrary cannot—refer to an achievement or historic event; nor does it promise the elaboration of a medico-sociologic theory, which, at this period of public awakening, is not needed; the practical demonstration of the truth about tuberculosis, as now known, would be at once more relevant and beneficent.

It does mean, however, in the primary term, *adaptation*, earnestly to call attention to a process in the making, initiating, developing, enlarging, eliminating; with variations and reversions; with advantages and failures, and yet with the evidence of inevitable progress. In dealing with so large a problem in so short a space our position and relation cannot be a perfect apprehension; it can only be fairly a progressive attitude, and indicate the opportunity and duty which the consensus as to aims and available methods and means would seem to present.

The highest aims and noblest accomplishments of medical science and practice are in the prevention of disease in its myriads of forms and all that it entails.

At the present time the prevention of tuberculosis is the biggest task, the most important and urgent one that concerns the public health. The sooner and the better this prophylactic work is performed, the less insistently pressing will be the alleviation of the consumptive and the annihilation of his fears. And the basement need of the problem is a full, virile, and hopeful realization of individual and social, governmental and industrial responsibility for the conditions which help to make the physical soil of the consumptive—his susceptibility—and those which permit the bacillary insemination of that soil. Compared with the constant prevalence of tuberculosis, the passing of brief epidemics of yellow fever, smallpox, Asiatic cholera, and the like, are but as wind-flurried ripples to the heaving ocean swell.

I believe, too, that a widespread and earnest appreciation of the single idea of adaptation is the heart of efficiency in the warfare against tuberculosis. Including as it does a recognition

of the salient fact, a grasp of the working principles, and an intelligent, balanced, and consistent application of both to the various and varying conditions and circumstances met with, and given, behind and through all, the power of a cheerful and hopeful and dauntless dynamic: What can stay a successful outcome before this twentieth century is half past?

In an article published in the *Saturday Evening Post* a few years ago, the brilliant young Senator Beveridge, of Indiana, discoursing upon the elemental, vital characteristics of the genuine American, put adaptability first. That the history of the colonization, formation, and development of the United States justifies that statement we may all agree. As a foremost, forceful faculty, adaptability was, and is not peculiar to pioneers and leaders in thought, ingenuity and deed, but characterizes the bone and sinew, the brain and spirit of the rank and file of the nation as well.

Early in the present year, Baron Kentaro Kaneko, of the Japanese House of Peers, who figured so influentially behind the scenes in the recent peace negotiations, delivered an address before the National Geographic Society, at Washington, in which he virtually attributed to the power of adaptation in the Japanese character (the "Yankees of the Orient"), the highest place in its marvelously rapid and efficient appropriation of the best material resources of modern Western civilization. When the Japanese came in contact with a foreign civilization, said he, they always go through three stages of evolution: First, imitation; then selection or adaptation; then origination, or to put it alliteratively, they "adopt," then "adapt," then become "adept."

But it is the middle process, adaptation, which is also central in importance and potentiality. Without it imitation lacks viability, and the copies soon degenerate and die; and perforce, skill and inventiveness fail to develop for lack of foundational thoroughness and breadth of adjustment to environment. Progress in social as in biologic evolution presupposes the capacity, tendency, and persistency of this largely essential factor of adaptation.

That the faculty, power, inclination of adaptation may be a virtue or a vice, however, especially in civic and economic matters is only too well known to us all. It may slope and drift downward into the valley of luxurious ease, indifference and degeneracy, or it may strive and rise up to the peak of achievement, delectation and stability. Adaptation in the better, progressive sense of the word to all who are concerned in this tremendous question of the mitigation, elimination and prevention of tuberculo-

¹ Read before the Pennsylvania State Medical Society, Scranton, September 26, 1905.

sis,—and who among us is not?—is as vital and fruitful a necessity to its solution as it is essential to the theory of natural selection.

We need adaptation to the guiding principles and to the tested and accepted modes of practice, not as a negative, natural, feeble, accommodating trend, but as a positive, personal, aggressive, leading force. No movement of special development can succeed, which disregards the interacting forces of will and environment; weak, unwise, unrighteous wills yielding to good or to bad environment make one double-barreled problem; strong, wise and righteous wills conquering a bad environment makes a single other one. Whether the psychic or the environmental influence is dominant in any situation or relation; whether the process be the gradual, age-long, Neo-Lamarckian evolution or the sudden, subtle, inexplicable appearance of a mutation, still it is adaptation which is the ruling factor.

My contention is (1) that adaptation on the part of the public to the intelligent and diligent application of prophylactic measures against tuberculosis need not and therefore should not be the interminably slow process of an unconscious, irresponsible, materialistic evolution; hence, (2) that individual initiative need not and should not be a game of waiting by the many upon a few, but can and must be the action of more with the willing co-operation of most of those who follow and yet who make up the consistent solidarity of any community.

There are always here and there alert, public-spirited, altruistic and energetic men who are ever ready and bound to lead in educating and organizing their fellow citizens in sanitary matters and methods. Usually such are physicians. *But right here let me urge that although the antituberculosis fight began on a medical basis, naturally, victory will be a very doubtful and at the best very remote result without the larger work of the layman.* This is truly a fundamental principle of the strategy, indeed, and there must be adaptation on the part of the general public as well as the medical profession to a rational knowledge of, and habitual attention to the means of prevention and limitation. Such adaptation is greatly needed on the part of hundreds of local societies in affiliation with the National Association for the Study and Prevention of Tuberculosis. Physicians have drawn and laid down the plans and specifications for the bridge that is to carry the populace safely over the dark gully of disease, despair and death, but the building must be done and the bridge used in the main by those who would be saved thereby.

Again, closely related to the preceding thought is a widespread and solid recognition of the need of public adaptation to the fact that the warfare against tuberculosis is clearly one which society at large must engage in. *The rise of a "new social conscience" must include also a new and adaptable sanitary conscience.* Generosity and charity are beautiful and noble virtues

of philanthropic opportunity, but these would not need to be strained and chided so often if those of governmental and industrial duty and justice were more in evidence. We sorely need a general adaptation, especially by officialdom, representative bodies, landlordism, and various big corporations to the doctrine that no conditions are socially or morally permissible which foster the propagation of tuberculosis. "Democracy began with assertions of individual right and develops in progressive restrictions of it by economic, educational and sanitary regulations. In just the degree that individual right goes free of the claims of social right is the stability of democracy insecure."

Did time allow one might profitably refer to the present attitude and adaptive qualities and activities which should be exercised by various classes of individuals, institutions, corporations, associations; to the general or civic attitude; the legislative and municipal; the executive and philanthropic; the journalistic and scientific, medical and educational, etc. It may be appropriate, nevertheless, briefly to emphasize some of the more striking issues and needs to which public adaptation must respond with Rooseveltian promptness, conscientiousness, courage, energy and tact, if the prevention and annihilation of tuberculosis (not at all an idealistic impossibility) is to meet with the early and assured success which the magnitude and humanity of the task imperatively demands.

1. *Public adaptation to the doctrine of the communicability of tuberculosis* is of primary importance. As physicians we realize this, but the teeming millions are yet in great part uninstructed, or unconvinced, or indifferent. On the other hand, the simple fact that the danger is practically limited to the sputum and avoided by its almost immediate disinfection and destruction has either not been taught or not been received by the laity with proper significance, so that in many places a needless alarm prevails which works mischief, discomfort and considerable hardship to the consumptive sometimes. This exaggerated and irrational fear, or phthisiophobia, has disturbed whole communities, even rural ones, and led to protests against the establishment of sanatoria in salubrious situations, against the short transportation of consumptives in ferry-boats, to the summary discharge of employees prematurely; to the ostracism, almost in certain hotels of favorable climatic location, of invalids of intelligence and refinement who take every precaution in regard to expectoration to make themselves innocuous to others.

The education of the masses concerning the transmissibility of tuberculosis must go on; Boards of Health, in municipalities especially, must enforce clearly defined and sincerely framed ordinances against spitting on sidewalks, in cars, stores, stations and factories; streets must be cleaned and sprinkled, pamphlets and circulars must be circulated, and a general educational

campaign conducted by the various charity, social, labor, literary and women's organizations, as well as the public press, and so on. And while instructing the public that tuberculosis is infectious to susceptible people, let it be equally understood that an enlightened public opinion is needed "in which everyone is frightened just enough to act sensibly and not enough to act foolishly." Also have it pointed out that the susceptibility to and mortality from tuberculosis will be lessened in proportion as social, industrial and political conditions enable more of God's children and workers to have an abundance of His sunshine, fresh air, and pure wholesome food.

Adaptation calls for the avoidance of extremes; at one pole the sensational alarmist; at the other the irrational antagonist, and between them, at the dead center, the flabby, lukewarm, miserable fatalist. Doubtless, the indifference of the latter, whether due to ignorance or the don't-care feeling, is to be dreaded most of all. Let us have a grasp of the problem, sensible; determination to solve it, inexorable; and withal, a balance of moral and physical fearlessness of attitude, imperturbable.

The Sanatorium Movement.—This needs particular emphasis. It is unquestionably the most far-reaching and efficient means of attacking the tuberculosis menace. The sanatorium makes the incipient consumptive and gives him every chance out of a hundred to get well; teaches him how to live when he has recovered and resumed work, so as to be an educational agency to his fellows as well as a support to his family and a productive member of his community. Likewise the special hospital for advanced, and the dispensary for ambulant cases afford sufficient means for segregating those of the one class which are foci of infection both in themselves and their habitations, where poverty, ignorance and carelessness prevail, especially; and for helping and instructing the walking cases, which might otherwise be neglected. There is a normous room here for private philanthropy and governmental duty. The uncertainty and meagerness of the former, however, make it incumbent upon the States to provide adequate accommodations for the poor consumptives, numbering in the hundreds of thousands.¹ Says Abbott, "the time is not far distant when the destitute tuberculous person will be regarded as a ward of the State. If this opinion prove true, we are in duty bound to provide him with the best chances of recovery or, at least, of reasonable comfort during his allotted period of life." True, a few States, have already begun the establishment of sanatoria, but they hardly more than touch the fringe of the need. A timely adaptation requires that the people insist that their legislatures meet the requirements frankly and substantially, and that governors exhibit a

freedom from misinformation, ultraconservatism; and sophistry which will enable them to affix their signatures to ample appropriations for this work. Our own Pennsylvania possesses in its forest reserves many admirable situations for its thousands of the consumptive poor.

The establishment of wards for the tuberculous in connection with existing general hospitals would help greatly, and with safety to others, under good management and discipline. A large number of sanatoria and seashore houses, house-boats, should be provided for patients having surgical tuberculosis, particularly for tuberculous children.

3. *The Physician.*—In a candid, clear-cut, masterly paper read before the National Association, at Washington, last May, Mr. Edward T. Devine, of New York, in no uncertain language placed the ultimate responsibility for the control of the scourge of tuberculosis upon the medical profession, with the qualification that such responsibility cannot be devolved unless laymen, legislators, and the various public agencies meet the conditions which authoritative medical opinion prescribes as essential. In other words, if there are certain sanitary obligations resting upon society at large, it is the first duty of physicians to lay down sound, verifiable principles of regulation in public and private, agitate and educate in behalf of those means of prevention which are reasonable and indispensable, and set the example of social obligation themselves by active and constant co-operation with organizations and authorities to whom appropriations and the enforcement of sanitary laws are committed. In this connection may one ask, Is the medical profession a unit in adapting itself to its duty in the voluntary or compulsory notification and registration of cases of tuberculosis? I fear not. Does it realize the importance of thorough training and skill and care in the diagnosis of tuberculosis in its early stage; and frankly but hopefully tell the patient that he has it, that it does not necessarily mean a death warrant, but that with his intelligent and obedient, cheerful and resolute co-operation he may be cured?

4. *The Dust Menace.*—For years I have felt that in fighting the dust evil a most important branch of sanitary work was to be found, especially in the large cities and towns. Public adaptation in this matter is hardly more than a threshold recognition. Street dust, plush cushion dust in trolley, regular passenger and Pullman cars, damp and dark corner and crack dust in houses, etc., is loaded with pus micrococci; and besides purulent nasopharyngeal, tonsillar, sinus, and bronchial inflammations, may be a threefold factor in pulmonary tuberculosis. *First*, it may act as a predisposing cause, as a direct physical irritant to the respiratory passages, thus inflaming the mucous membranes and weakening their resistance to bacillary invasion. *Secondly*, it may carry infection directly by means of dried, fresh tuberculous sputum that some ig-

¹ "The Necessity of State Aid in the Treatment of the Consumptive Poor," by the author. Phila. Med. Jour., June 6, 1900.

norant or careless consumptive has recently expectorated. *Thirdly*, aggravation of tuberculosis, by converting an incipient and curable case into one of rapid and virulent destruction of lung tissue, because of the addition of pus-producing germs. *Pulverized poison* added, a mixed infection engendered, and speedy dissolution follows. When will our municipal authorities see clearly, understand fully, and act humanely? How long must the people submit supinely to the present conditions of street dirt, an insufficient sprinkling, and infantile methods of cleaning? For the fault is not entirely with rushing automobiles, grinding trolley cars, and unsophisticated Italian street-sweepers. Were the dirt removed at night, and the comparatively slight remaining dust kept down during the day by sprinkling, as a part of a city's duties to its citizens, these public utilities would incur less justifiable criticism.

And what might not be said about the failure of the public generally to adapt itself to the anti-tuberculosis demands of a multitude of other issues in spite of the growing improvement in education through the formation of local societies for the prevention of tuberculosis, of which the Pennsylvania Society was the first; in spite of the growing sanatorium movement, with Germany's exemplary record of provision for nearly ten thousand consumptives; and of the improvement in the personnel, methods and powers of health boards, the fact is 'only too patent that but a beginning, and a not too large one at that, and a much too slow one to grow as it could and should, has been made.

Is there a recognition on the part of the public, or a semblance of adaptation to the needs which one can but mention here: Abolition of cul-de-sac alleys and opening of wide, tree-lined streets; disinfection of houses from which consumptives have been removed either living or dead; earnest and firm enforcement of anti-spitting ordinances; the adoption of individual communion and school cups; effectual screening against the house fly, with its sputum-infected feet, palps and sucker; legislation against the granting of marriage licenses to the evidently tuberculous; rigid inspection of factories and tenements, and the power to close sweat-shops and bake-shops under sufficient provocation; the stopping of child labor under conservative age limits; and, as Egbert well argues, the more efficient and appropriate teaching of practical hygiene in our public schools and colleges.

Life insurance companies and fraternal societies might find it a profitable investment to establish sanatoria for the tuberculous, thus prolong the life of policies by prolonging the lives of paying policyholders, aid in diminishing the morbidity of phthisis, and increase insurance business by the very attractiveness of such methods and by the ability to increase dividends instead of presidential salaries.

We may hail with gratification an awakened

tendency to enact and enforce pure food laws; and, on the part of such journals and magazines as the *Ladies' Home Journal*, *Collier's Weekly*, and a few newspapers, to inaugurate a strenuous warfare against the alcoholic and narcotic proprietary and patent medicine abomination. Conscience is gradually undermining a heartless commercialism. Consistency demands that advertising column practice shall accord with editorial and ethical profession. A generation hence, sooner, it is to be hoped, historians will wonder that the drugging evil, exploited mainly through newspapers and periodicals and a gullible public, should have been tolerated so long. And how many consumptives have been duped into untimely graves by the makers and venders of the nostrums advertised as "cures" will never be known until Judgment Day.

Adaptation for progress in the prevention of tuberculosis is having a hard struggle against the four I's: Immigration, Ignorance, Indifference, Iniquity.

When Hugo de Vries caught a new species of evening primrose in the making, by the sudden appearance of mutations, he demonstrated that organic evolution does not always or necessarily require Darwinian eons. Nor, analogously, need we wait for the tuberculosis problem to solve itself by the general drift of the mass of people of indifferent attitude; drifting is usually downward and backward. In a matter which touches the rim or center of nearly every family in the land; and where economic progress and enlightenment depend upon the health and vigor of working humanity so intimately, adaptation must mean the desire and power of individual duty, social responsibility and democratic fidelity.

May we learn the lesson forthwith of political organization and revolution. Were the workers in the crusade against tuberculosis to operate with one-half the attention to detail; the correlation and unification of the lesser organizations to and within the greater; the masterly management; the loyalty to procedure; and the generosity in financial equipment, what wonders might not be accomplished. And why not?

On the other hand, why should the fight against the White Plague be so slow, feeble and spiritless? Are the circumstances of its prevalence and virulence so well known, or its preventability and curability so keenly regarded that sanitary revolutionists should not rise to protest, and sweepingly oust the conditions which give it its grasp, as a Weaver or a Folk in the political arena,

A new alignment is surely forming, in which no profound prescience is required to distinguish the dawn of governmental control based upon a higher integrity and a greater efficiency of administration; potentiality will be conferred according to purity.

No better Federal adaptation to the movement could be consummated than the placement

of a cabinet officer in Washington at the head of a Department of Public Health. And what could be more opportune or appropriate than that President Theodore Roosevelt, the respecter and admirer of physicians, the friend of General Dr. Leonard Wood, the vigorous, valiant, magnificent, manly statesman and man, should have the first secretary, as a rounding out of his characteristic eminence and exemplary ability and morality as the twentieth century pace-setter?

Finally, my brethren, whatever is of good report in the prevention of tuberculosis; and in the education and inspiration of an ignorant and indifferent public, speak on these things as a daily, personal, missionary privilege and duty, in the well-grounded belief and high hope that, although the problem is hard and complex, it is nevertheless solvable; though tremendous in scope it is yet conquerable.

A NEW OPERATIVE PROCEDURE IN INTESTINAL ANASTOMOSIS.

BY BARTON LISLE WRIGHT, M.D.,

PASSED ASSISTANT SURGEON, UNITED STATES NAVY.

THE following operation was devised with simplicity of operative procedure in view.

The accepted methods of end-to-end intestinal anastomosis in surgical practice to-day, while comparatively simple to those surgeons having a long experience in this line of abdominal surgery, to many others, they appear complicated and difficult to accomplish.

The primary object of every operation of this character is to secure a smooth and tight approximation of the serous coats of the proximal and distal extremities of the severed bowel, and at the same time to securely fasten by suture the fibrous and muscular coats.

Secondarily, it is of vital importance that this be accomplished with the slightest possible amount of manipulation of the part involved, to introduce the least number of sutures, to secure anastomosis with security and safety and to reduce the time of operation to a minimum.

With these facts in view it is here offered the following description of the operative procedure, which will prove of some interest to all those engaged in abdominal surgery.

In limiting the primary stages of operation to all abdominal work, it will begin with the securing of the intestine in position for suturing.

First Stage.—The introduction of three temporary, or stay sutures, which divide the circumference of the intestine into three equal parts.

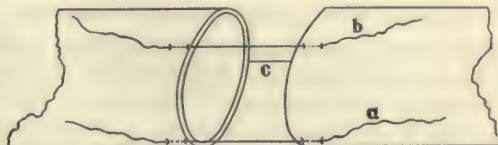
These are Lembert sutures, the first (Fig. 1, *a*, Fig. 1) should be introduced at the characteristic attachment; the second (*b*, Fig. 1) at the top of the circumference of the bowel, about one-third of the circumference; the third (*c*, Fig. 1) similarly placed and one-third the circumference of the bowel distant from *a*.

These sutures should be left in place and their free ends secured by forceps or the finger and thumb.

Second Stage.—The operator's assistant now takes the stay suture *a* in one hand, and the stay suture *b* in the other, and by firmly drawing these in opposite directions it will be found that the free edges of the gut naturally invert themselves and come into close approximation, forming a ridge, raised above the general surface of the bowel, through which the permanent suture can readily be passed.

Third Stage.—The operator, with a straight needle threaded with the suture material he prefers, passes the needle straight through the ridge

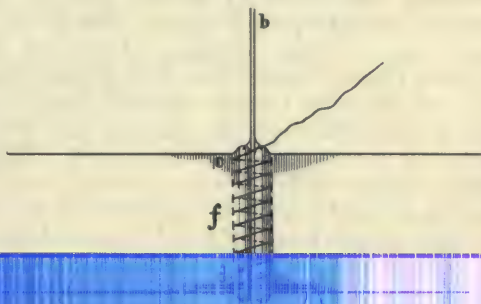
Fig. 1.



at *d*, Fig. 2 (placing forceps on the free end to keep it from being drawn through), and by continuous suturing to *e*, Fig. 2, it will be seen that he has sutured the first third of the gut by a continuous modified Lembert suture.

The assistant now drops the stay suture *a* and takes the stay suture *b* in one hand and the stay suture *c* in the other, and again proceeds as before; the operator carries his permanent continuous suture to *f*, Fig. 2.

Fig. 2.



The assistant now drops the stay suture *b*, and takes the stay suture *a* in one hand and the stay suture *c* in the other, and proceeds as in the first stage, the operator carrying the permanent continuous suture to *d*, Fig. 2, at which point it begins to pass out of the opposite side, and the first suture introduced and completes the procedure by tying *a* with the free end of the suture.

The temporary stay sutures can now be removed, or, if additional security is desired, they can be tied and cut.

The operation is completed by suturing the mesentery.

The severed gut will be found securely and tightly closed by a continuous modified Lembert suture, which in its introduction has required but little manipulation of the parts, and the entire procedure has occupied but a short period of time.

THE DETECTION OF FUNCTIONAL DISTURBANCES OF DIGESTION BY THE EXAMINATION OF THE FECES.¹

BY J. DUTTON STEELE, M.D.,
OF PHILADELPHIA;

ASSOCIATE IN MEDICINE UNIVERSITY OF PENNSYLVANIA.

OUR knowledge of the physiology and pathology of the intestines as compared with the stomach is scanty and uncertain. The reason for this is not hard to discover, for the accessibility of the stomach has rendered it fairly easy to investigate its functions, whereas the intestine is beyond the reach of direct observation and its contents reach us through the rectum only after the chyme has been subjected to many complex digestive and absorptive processes.

Many efforts have been made to elaborate a method of clinical examination of the feces that would give reliable information in regard to functional disturbances of intestinal digestion.

By the use of a test diet such as that devised by Schmidt, fairly reliable data can be obtained concerning the power of the intestine to digest certain foods like potato starch, butter fat and muscle fiber. When remains of any of these foods are present in the stool to a greater degree than our study of healthy patients have shown to be normal, then we can assume that proteid, starch, or fat digestion is imperfect. But an exactly correct interpretation of the variations from the normal is almost impossible in the present state of our knowledge of intestinal pathology. The reason of this is found in the fact that the digestive processes in the intestine are very complex and, as recent investigations have shown, are interactive to a certain extent. This provides for a considerable amount of vicarious action, and it is probable that when one secretion is suppressed its function can be assumed by the secretions of other organs. This intimate relation of the various organs connected with intestinal digestion so complicates any effort to devise a method of determining what organ or secretion is at fault in any given case as to render the attempt practically useless. Perhaps I can best explain this by giving an example.

For instance, an excess of undigested muscle fiber in the stool might be produced by any one of the following conditions: (1) A total lesion of the pancreas and absence of trypsin and of proteolytic digestion. (2) Trypsin may be present but its activating enzyme enterokinase may

be absent. This ferment is found in the succus entericus and strongly intensifies the action of trypsin—indeed, it is probable that the latter ferment is not active unless enterokinase is present.

(3) The period of passage of the food through the intestine may be so rapid that time is not given for digestion. (4) Large pieces of undigested muscle may be present because gastric digestion is imperfect and the connective tissue framework of the meat has not been digested. Consequently this has not reached the intestines in a finely divided enough condition to ensure perfect digestion.

Thus an excess of undigested muscle fiber in the feces does not always indicate failure of the pancreatic secretion alone, as might be thought, but may be caused by disturbance of the gastric or intestinal function as well. Conversely the absence of meat fiber from the stool does not always exclude pancreatic disease, because apparently as long as there is any pancreatic secretion discharged into the intestine there is no disturbance of intestinal digestion. The definite symptoms that are usually associated with pancreatic disease, namely, a great deficiency in albumin digestion and decided disturbance in fat digestion, do not occur until the secretion of the pancreas is entirely shut off, and in some cases do not appear even then.

The discovery of a fat splitting ferment in the gastric juice and the uncertainty as to the part played by the bile in fat digestion and absorption renders any but very excessive changes of fecal fat of little value in the detection of intestinal or pancreatic disease.

However, I do not mean to say that the routine functional examination of stools which are passed from a known diet is entirely without diagnostic value in the detection of pancreatic or intestinal disease. Such examinations often indicate in a general way what digestive processes are at fault and this data may be of great value when considered not by itself but as a part of a symptom complex.

I have found the functional examination of the feces most useful not in diagnosis, but rather in following the digestion and absorption of various foods in determining the proper diet for patients suffering from gastro-intestinal disease. While it may be impossible to determine what secretion is at fault, it is easy to tell whether starches, proteids or fats are digested and absorbed and if any one of them is not assimilated by the organism, the amount of it ingested can be restricted.

Thus the irritation of proteid putrefaction or starch fermentation is avoided and nutrition is maintained or improved by substituting some other form of food.

Physiological chemistry might be a more exact method of determining the food remainder in the feces, but chemical methods are too slow and difficult to be of use in the routine examination of large numbers of patients, and require,

¹ From the service of Professor Musser, Hospital of the University of Pennsylvania.

besides, special training in the observer in the command of special laboratory resources.

In determining the proper diet by the examination of the stools I commence with the test diet given below in order to get a general idea of the intestinal functions.

If no decided impairment of digestion or absorption is disclosed, the different constituents are gradually increased until the limit of each is discovered. If, for instance, meat cannot be digested and absorbed as in the case here cited, starches and fats should be increased until their limits are found and other proteids tried until the diet is adjusted to the patient's needs. In this manner the examination of the stool is made to play a much more useful part than that of diagnosis alone.

The following case, of deficient intestinal proteid digestion with a secondary enteritis, shows very well how the diet may be regulated by the functional examination of the stool:

O. T., male, aged twenty-three years, white; farmer. He never used tobacco or alcohol and denies venereal disease. He always has had a good home and regular, good meals. In October, 1904, after indulging in sweet cider, he was seized with diarrhea and abdominal cramps which at first were most severe in the epigastrium and then spread to the lower and central abdomen. These cramps came on irregularly and without relation to the taking of food. They were accompanied by gaseous eructations and distention. The diarrhea was constant, with an average of four or five watery stools daily. Occasionally there was a little blood and mucus mixed with the feces. He lost steadily in weight and fell from 145 to 118 pounds. He was never jaundiced. There were no symptoms referable to the urinary, vascular or nervous systems. He was admitted to the medical wards of the University Hospital in the service of Dr. Musser June 10, 1905.

Examination upon admission showed a somewhat tense and moderately contracted abdomen. There was no tenderness except in a spot in the middle of the epigastrium and the recti muscles were rather more tense over the upper half of the abdomen. The teeth and mouth were normal. The organs of the thorax were normal.

Stomach.—An Ewald breakfast showed good digestion; T. A., 44; free hydrochloric acid, 20. No retention. Inflation of the stomach showed that it was normal in size and position. *Blood*.—There was a moderate secondary anemia. Hemoglobin 85. No leucocytosis. *Urine* normal in amount and constituents. *Tuberculin test* negative, excluding tuberculous enteritis. *Fever*.—The patient had no fever while under observation.

Proctoscopic examination was negative. *Feces*.—Examination while the patient was upon beef broth and milk diet showed absence of mucus and no occult blood. There were numerous undigested muscle fibers in the stool, although the

patient had had nothing made from meat except broth for a week. The fibers did not contain nuclei. Occasionally while under observation there was a little mucus in the stool.

June 15.—The patient was placed upon the writer's modification of Schmidt's test diet. (See later.) This showed a period of passage of thirty hours. Muscle fibers were present in great excess and were visible to the naked eye. Connective tissue was found only microscopically and in small amounts. No potato cells nor starch. A very moderate amount of fats. No starch fermentation or albumin putrefaction. Reaction neutral or slightly acid. Sublimite test showed hydrobilirubin. No mucus. No blood. No parasites. The patient was kept upon this diet for five days and the fact was clearly established that digestion of meat fiber was very deficient, while that of starches and fats was very good. No muscle nuclei were found at any time.

Diagnosis.—(1) Some functional disturbance of proteolytic digestion in the intestine as shown by the meat fiber in the stool. (2) Gastric digestion good. (Good secretion and digestion in the test meal and absence of connective tissue in the feces.) (3) Enteritis of subacute type secondary to imperfect meat digestion. The trouble may have been a hyposecretion of the pancreas or may have been in the activating ferment. The absence of nuclei would argue against a complete pancreatic lesion although, as I have said, incomplete lesions cannot be diagnosed with certainty.

These functional disturbances of the pancreas and small intestines are not amenable to direct therapeutic measures as far as we know. Consequently in this case it was not so important to know what organ was affected as to ascertain the fact that meats were not digested, since if the diarrhea was due to the presence of undigested muscle it could be checked by reducing the amount of meat ingested.

The patient was put upon a diet containing no meats and with an increased amount of starch and butter fat. Under this dietary the diarrhea stopped and the body-weight began to increase, confirming the supposition that the diarrhea was connected with the undigested meat.

Examination of the stool showed that the extra starch and fat were well borne, but whenever he was given a piece of meat, muscle fiber visible to the naked eye appeared in the stool. The patient was then put on a diet containing a still greater amount of starch and fats and was given a half ounce of pure olive oil after each meal which was later increased to one ounce. When he left the hospital he was taking 2 quarts of milk, 6 eggs, 300 grms. of rice or potatoes, 6 pieces of toast and butter, besides the regular vegetables and desserts of a house diet with 3 ounces of olive oil daily. His stools showed: considerable soap but no neutral fats; no excess of starch; no starch fermentation; no albuminous

putrefaction. The sublimate test showed hydrobilirubin. Reaction acid. The patient's weight had risen from 112½ upon June 19 to 118½ upon June 25. He was instructed to adhere to this diet and was discharged. A note from him a month later said that he had gained 28 pounds (weight 141), and was free from diarrhea and symptoms of enteritis.

The credit of originating the method generally followed in such functional examinations belongs to Adolph Schmidt and Strasburger. It has been modified and elaborated by Strauss and Koziczowsky, but the clearest and most comprehensive scheme is that given by Schmidt in his recent monograph (*Die Functionprüfung der Därme mittels der Probekost*, etc., Wiesbaden, 1904). I have followed this with certain modifications in my work, and it is my purpose to give the method in full as I have adapted it to American hospital and clinical methods:

Schmidt demands two conditions for a satisfactory clinical method of examination of the feces. (1) Knowledge of what a normal stool should be under a certain diet, involving the use of a "test diet." (2) The methods of examination must be so simple as to be within the reach of everybody. The main points of the examination given here can be readily completed in ten minutes if one is well practiced in the various steps.

1. The test diet. The requirements are: *a.* that it be nutritious enough to furnish calories sufficient for the body's needs. *b.* That it be so constituted that it can be obtained in any household or hospital dietary. *c.* that it contain a known amount of its constituents so that variation in digestion and absorption can be detected in the stool.

Schmidt suggests the following diet, which has been slightly modified by many different observers, but which remains the basis of all "normal or test diets." 1.5 liters milk, 100 grms. zwieback, 2 eggs, 50 grm. butter, 125 grms. very rare or raw beef, 190 grms. potatoes, gruel from 60 grms. of oatmeal, and 20 grms. of sugar.

In my own work I have translated this into American terms suited to a hospital or private kitchen as follows: 2¾ pints milk, 3 ounces well-dried toast, 2 eggs, 1½ ounces butter, ¼ pound tender rare steak, 6 ounces mashed boiled white potato and gruel made from 2½ ounces of ordinary oatmeal, ½ ounce sugar.

This may be given somewhat as follows: Breakfast—2 eggs, ⅓ of the amount of toast and butter, 2 glasses milk, oatmeal and sugar. Dinner.—The steak and potatoes, ⅓ of the amount of toast and butter, 1½ glasses milk. Supper.—2 glasses milk. Remainder of toast and butter.

This diet is not enthusiastically received by the average patient who is not seriously ill, because of its limitations in amount of food allowed; however, it has the advantage of being suitable for almost any gastro-intestinal case,

and, moreover, it is only given for a period of two or three days. A capsule containing 5 grains of carmine or charcoal is given with the first meal and no examination is made until a red (or black) stool appears.

The amounts of each article given must be measured accurately at first and then, when the number of slices of toast, quantity of cooked oatmeal and so on is fixed in the attendant's mind, each article need not be weighed at each meal. This does not apply to the meat and potatoes, which should be weighed every day.

The *period of time* required for the passage of food through the gastro-intestinal canal is of importance and can be easily determined by watching for the first red stool. It is quite as necessary to know the time required for the passage of chyme through the gastro-intestinal canal as it is to ascertain how often the patient has a stool, since the two things are in no way identical.

The period of passage (*Verweildauer*) may be greatly increased and the patient suffer from copremia, and yet defecation may be regular and fairly copious. This latent constipation no doubt may lead to errors in diagnosis. In diarrhea it is sometimes possible to arrive at an approximate idea of the seat of the intestinal disturbance by observing the period of passage. If this is normal the trouble lies in the lower or middle portion of the large intestine and peristalsis is not increased in the small bowel. Strauss has shown that chronic colitis with several watery movements a day may be accomplished by a normal period of passage and that peristalsis was decidedly increased only when the inflammation was in the ascending colon or small intestine.

Straus found that the time required for his test diet (similar to Schmidt's) to pass through the alimentary canal was ten to twenty hours, whereas in Koziczowsky's experience the period was fifteen to twenty-five hours. Maurel states that in a pure milk diet the period is thirty-six to forty-eight hours. In disease this period may be reduced to four hours.

Much can be determined by the *naked-eye examination* of the stool. The consistency, color and smell must be observed. Then a piece of formed stool as big as an English walnut or an approximately equivalent amount of liquid feces is rubbed up in a mortar with distilled water until it is quite smooth and liquid.

Part of this is poured into a large petri dish or upon a glass plate and examined in a good light and over a dark background. I have found the petri dish a very great convenience in this part of the examination as its sides prevent the material from spilling. A little experience will enable the observer to acquire a surprising amount of information about the composition of the stool by this macroscopic examination alone.

In normal digestion very little should be seen by the naked eye except small brown points (oatmeal or cocoa hulls) and occasionally sago-

like grains that look like mucus but which the microscope shows to be grains of potato.

Pathologically there may be: (1) *Mucus* in large or small flakes which are not affected by rubbing in the mortar. The smaller the flakes the harder it is to recognize them, but Schmidt says that in his experience none are so small as to escape detection if the stool is examined in the manner described. The mucus appears as glassy translucent flakes often stained yellow by bile pigment. Doubtful cases can be decided by the microscope. (2) *Pus, blood, parasites, stones and foreign bodies* that do not call for especial comment. (3) *Remnants of connective tissue* and sinew from the beefsteak. These can be detected by their whitish yellow color and their toughness, by which they can be distinguished from mucus. In case of doubt a piece should be examined microscopically with a drop of acetic acid. Connective tissue then loses its fibrous structure, whereas mucus becomes more threadlike. Small single pieces of connective tissue can be found in normal stools. But when they are numerous and large their presence indicates decided impairment of gastric digestion.

(4) *Remnants of Muscle Fiber*.—These appear as small, reddish-brown threads, or small irregular lumps. When they can easily be recognized by the naked eye and are quite numerous it shows impaired intestinal digestion.

(5) *Remnants of Potato*.—As was said, these look like grains of boiled tapioca, and may easily be confused with mucus. The microscope will show the true nature of the bodies.

(6) *Large Crystals* of acid phosphate of ammonia and magnesia. These occur in foul stools and can be recognized by their shape and chemical reaction (solubility in all acids).

The Microscopical Examinations confirms the naked eye inspection. Three slides are prepared from the liquid feces. The first is merely a drop of the material to be examined under high and low powers. The second slide is prepared by mixing a drop with a drop of acetic acid (U.S.P.), heating it to boiling and then putting on a cover glass. The third is a drop of material with a drop of weak Lugol's solution (Iodine 1, Potass. iodide 2, water 50).

Normal Stool.—The first slide will show: (a) Single small muscle fibers colored yellow usually with cross striations. Visible with Leitz 3, but showing better with Leitz 5. Oc. 3. (b) Small and large yellow crystals of salts of fatty acids. (c) Colorless (gray) particles of soap. (d) Single potato cells without distinguishable contents. (e) Particles of oatmeal and cocoa shells. In the second slide a general idea can be obtained of the fat contents of the stool. Upon cooling, small drops of fatty acids can be seen over the whole preparation. The large crystals of salts of the fatty acids and the soap are broken up by the acetic acid, and the fatty acids are liberated. If the slide is heated again and examined hot, the fatty acids will be seen to

run together in drops, which, as the slide cools, break suddenly apart.¹ In the third slide, there should be violet blue grains in some of the potato cells and small single blue points, probably fungi spores.

Pathologically there may be: Slide I.—(a) Muscle fibers in excess perhaps with yellow nuclei. (b) Neutral fat drops, or fatty acid in soap crystals. (c) An excess of potato cells with more or less well preserved contents. (d) Parasite eggs, mucus, connective tissue, pus and so on.

Slide II.—Fatty acid droplets in excess. Slide III.—Blue starch grains in the potato cells or free, oatmeal cells, fungus spores or mycelia.

The Chemical Examination.—This comprises only three routine tests, with a possible fourth. They are the reaction of the stool, sublimate test for the condition of the bile salts, the fermentation test, and perhaps the estimation of the "lost albumin." The reaction of the stool, which is quite difficult to get by the use of litmus paper, can be very easily determined by dropping a little softened fecal matter into 5 or 10 c.c. of a weak watery solution of litmus, shaking it and noticing the color reaction. The *sublimate test* consists in taking a few c.cm. of the liquid feces and mixing it with an equal amount of saturated water $HgCl_2$ solution. A normal stool will quickly turn a pinkish red, indicating the presence of hydrobilirubin, which will be the more intense the fresher the material. A green color even, if it is detected microscopically, is pathological and indicates unchanged bile pigment.

The Fermentation Tests.—The apparatus used is described in the illustration. My own modification follows very closely Strasburger's instrument, but is more easily made and repaired.

About 5 grms. of fresh formed feces are taken, or an equivalent amount of thinner material (see Koziczowsky's table below). This is rubbed up with sterile water and poured into the main bottle A. This is filled with sterile water, tube B is filled with water and fitted in place (not necessarily entirely full) and tube C is then fitted on (empty). The reaction is carefully noted before the test is started. The apparatus is then stood in a warm place, best in an incubator, at 37° C. for twenty-four hours. If gas forms by fermentation in A it will rise into B and the amount will be indicated by the water displaced into C. Normally the fermentation test should show practically no gas, and the original reaction of the material should be unchanged after twenty-four hours. If more than one-third of the tube C is filled it is pathological. If then the reaction after twenty-four hours is decidedly more acid, it is a carbohydrate fermentation, if alkaline and with a foul smell it is a fermentation of the albumins.

A quantitative test for albumin may be made as follows: A softened portion of the stool is filtered (a slow and difficult process), the filtrate

is shaken with silicon and refiltered, then is saturated with acetic acid to bring down the nucleo-proteids, and then a drop of potassium ferrocyanide solution is added. A decided precipitate indicates albumin. A positive test shows only that there is a decided diminution in albumin digestion. Where this occurs must be decided by other means.

Koziczowsky (*Deutsche med. Woch.*, 1904, Vol. 30, No. 33) has devised an ingenious method of determining the albumin residuum of the feces quantitatively. He employs a test diet almost identical with that of Schmidt. It consists of 1½ liters of milk, ¼ liter of bouillon, 6 pieces of zweiback, 40 grams oatmeal, 40 grams butter, 2 eggs, 30 grams scraped meat and 200 grams of mashed potato. Koziczowsky employs a known weight of the stool in his method, but finds it cumbersome and unnecessary to dry the stool for the purpose of weighing it. To avoid this he has determined the relative weight of dry and fresh fecal matter of various consistencies and so simplifies the procedure considerably. The following table shows these relative weights:

1 gram formed stool contains about 0.3 gms. dry substance.

1 gram semi-liquid stool (good fat absorption) contains about 0.25 to 0.27 dry substance.

1 gram semi-liquid stool (poor fat absorption) contains about 0.20 to 0.24 dry substance.

1 gram liquid stool contains about 0.116 dried substance.

The method consists in estimating the albumin residuum in a given weight of stool by digesting it with pepsin and HCl, then measuring the HCl consumed. Two portions each representing 2 grams of dried fecal matter are taken and washed separately upon nitrogen free filters with strong alcohol, then with absolute alcohol and finally with dilute HCl of the strength of 3 parts in 100. One portion of the stool is then mixed with 50 c.c. of a solution containing dilute HCl 10 c.c., pepsin, 30 grams, water, 100 c.c., and the other portion with the same quantity of HCl solution without the pepsin. Both flasks are corked and kept in the incubator twenty-four hours. Before sealing the flasks the amount of HCl in each portion is estimated by titrating it with decinormal NaOH solution. After incubation over night the acid is measured again by titration. The flask in which there was no pepsin will show the digestive power remaining in the feces due to the presence of proteolytic ferments. Rarely are such present, and the difference between the first reading of free HCl and the second reading in this flask seldom exceeds two or three points in terms of decinormal NaOH. The total acidity and HCl is then taken in the pepsin flask by the usual methods, with phenothalein and dimethyl-amido-azo-benzol as indicators. The difference will show the amount of acid consumed in the digestion of the albumin present. In normal stools this is

usually between 15 and 18 points. Koziczowsky gives no record of the tests in different diseases owing to his lack of material. The test is much the simplest yet devised for the estimation of albumin residuum and deserves more extended investigation.

The Clinical Significance of the Tests. Mucus.

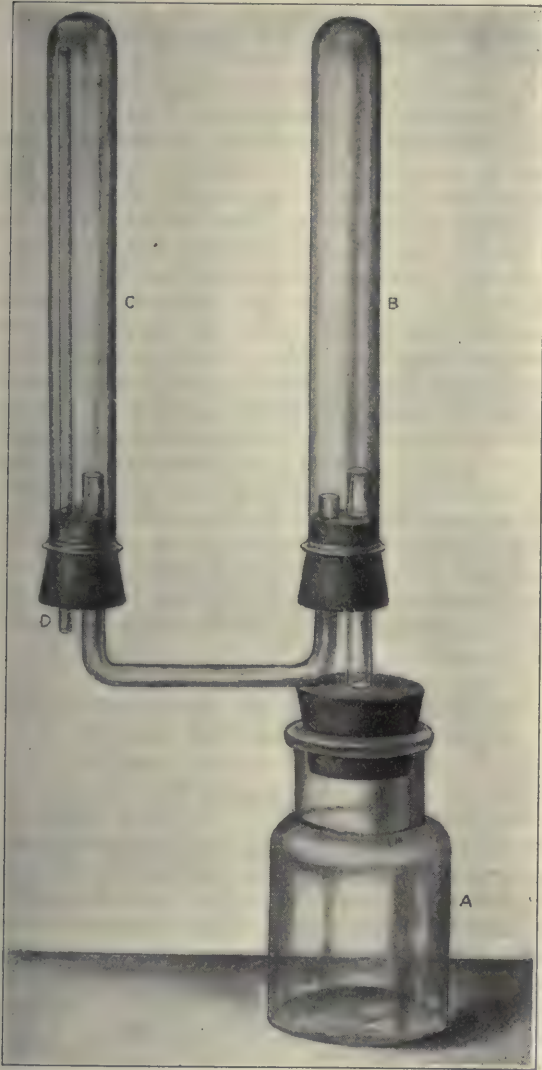
—As a rule the appearance of mucus in the stool indicates the presence of inflammation of the mucous membrane and is the one trustworthy sign of that condition. There are two conditions in which mucus has no significance. First, when thin mucus spreads over the surface of a hard dry ball of feces without evidences of a rectal inflammation. Second, so-called mucous colic with discharge of mucous casts. As a general rule the form of mucus indicates the part of the intestine from which it comes, although there are many exceptions.

Bile Pigment.—A green color of part or all of a stool (by the sublimate test) is pathological except in children. It means too short a period of passage through the intestine and that time for the normal reduction of the bilirubin into hydrobilirubin was lacking. A normal fresh stool should give a pink color with HgCl_2 . If a color action of any kind is absent it indicates either absence of bile in the intestine, a very fat stool or the reduction of the hydrobilirubin into leucohydrobilirubin, which is a colorless substance. Colorless stools without evidences of biliary obstruction—or, as they have been termed, “alcoholic stools without jaundice”—if due to the reduction of hydrobilirubin into leucohydrobilirubin will show a pink color with the sublimate test. The stools containing leucobilirubin turn brown upon exposure to the air, and the colorless fat stools show the same color change if they are first extracted with ether and then allowed to stand.

Fat.—It will need a little practice to tell by the use of the diet, whether there is an increase of fat in the stool. And as the normal amount of fat in the feces varies between wide limits, only a very considerable excess of fat can be detected. The examination for fat given here is useful in watching the digestion and absorption of various amounts of fat, and in that way I have found it valuable. For instance, in the case reported in which there was considerable emaciation caused by a diarrhea from insufficient proteid digestion, fats were found to be well borne and olive oil and butter fat were given in increasing amounts until the presence of an excess of soap and neutral fat indicated the limit of absorption and digestion. Under this diet the patient's diarrhea stopped and he gained 28 pounds in weight.

Remnants of Meat.—Normally there should be only microscopic particles of connective tissue and muscle fiber. An excess of either is often visible to the naked eye, but need not be macroscopic to be evidence of a pathological change in the intestine.

Excess of Connective Tissue means insufficient gastric digestion because such fibrous tissue is only digested by the juices of the stomach. The meat should be rare to give this test its full value. Even in hyperacidity such remnants may be in excess if motility is increased.



The apparatus consists of a two-ounce wide mouthed bottle A. This is fitted with a perforated rubber cork through which runs a tube to the test tube B, which is also fitted with a rubber cork with two perforations. A bent glass tube runs from B to the test tube C to allow for the escape of air. Each test tube has a capacity of slightly more than 30 c.c. when fitted on the corks. The apparatus is simple and is easily constructed, and broken parts can be easily replaced.

Excess of undigested muscle fiber means disturbance of intestinal digestion and probably means trouble in the upper part of the small intestine, but whether the trouble is in the trypsin of the pancreatic secretion, or in the activating action of the succus entericus, or in increased peristalsis we can only surmise from other symp-

toms. Connective tissue and muscle fiber together are sometimes found when the stomach fails to digest away the framework of fiber and the intestinal juices have no chance at the bundles of muscle fiber. This meat lientery occurs often in acute gastric catarrh.

Pathological carbohydrate fermentation means poor starch digestion, and indicates, as a rule, disturbance in the small intestine, which is usually due to insufficiency in the succus entericus.

Pathological albumin fermentation means a large remainder of albumins in the feces, and indicates in Schmidt's experience serious trouble, usually some anatomical change in the mucus membrane of the small intestine. I cannot confirm this statement from my own experience or from the experience of other observers.

I believe the quantitative estimation of the albumin residue by Koziczekowsky will prove a more reliable method of estimating insufficient albumin digestion or absorption.

AMEBIC INFECTION OF THE URINARY BLADDER WITHOUT RECTO-VESICAL FISTULA.¹

BY JOHN R. MCDILL, M.D.,

AND

W. E. MUSGRAVE, M.D.

OF MANILA, P. I.

ABOUT February 1, 1904, T. R. L., a young man twenty-eight years of age, who previously had good health, began to experience slight but persistent dragging pains in the right lumbar region which gradually increased in severity until he was obliged to seek relief in hospital, March 20.

Examination of the urine the same day showed it to be normal. Medicines were administered which he was informed were for lumbago and probable abscess of the kidneys, although no physical examination was made, and beginning March 21 his bladder was irrigated daily for ten days with a boric acid solution through a rubber catheter introduced into the bladder, the reason being given that it was necessary on account of "irritation of the bladder causing kidney disease." The patient had never complained of symptoms suggesting functional or other disturbance of the bladder.

About March 27 his bladder was explored for stone, and three days later blood appeared in the urine accompanied by dysuria, frequent desire and severe pain at end of micturition. This condition increased in intensity, and on April 4 the Government Laboratories reported the presence of amœbæ in the urine, and, as he states, a 1 to 1,000 solution of quinine was substituted for the boric acid irrigation.

Amebas was still present April 18, when the patient left the hospital, and he sent specimens of urine to the laboratory on April 26, 27 and 28, all of which were positive for amœbæ. April

¹ Reported at the Manila Medical Society, November, 1904.

29 the patient came under our observation, and after hearing his history as above given, examination of the right kidney showed it enlarged, sensitive and freely movable, so much so that the upper pole of the organ could be brought down below the costal arch, when it would glide from under the fingers back into its niche. There was no fistula between bowels and bladder.

After the presence of amœbæ in the urine and the absence of them in the stools was certified to by Dr. Musgrave, daily irrigations of the bladder by Valentine's method were begun May 1, beginning with a 1 to 500 solution of quinine sulphate, increasing the strength daily until a one per cent. solution was given on the 11th of May, when the irrigations were discontinued, the urine showing no parasites on that date although they had been present on May 5.

The bladder was distended three times at each irrigation and about 150 c.c. of the last instillation were retained without discomfort, the patient holding it easily for from two to five hours. One week after discontinuing the irrigations no amœbæ could be found and the patient felt as well as ever, his back also having ceased to trouble him, although the kidney was freely movable but not sensitive.

Three months later the urine contained no amebas and the patient has had no return of the symptoms at this time, June, 1905, fifteen months after the infection was discovered.

Source of Infection.—The patient, a very intelligent man, states that not appreciating the reason for interfering with his bladder, he observed every detail carefully and was so sure that the ward attendant who performed the irrigations did not always cleanse his hands and the catheter, that he called his attention to the apparent neglect on two or three occasions. The hospital in which he was treated a large number of amebic dysentery cases by one or more high irrigations of the colon daily, and this man's bladder was frequently irrigated by an attendant who had just finished giving a series of enemas to dysenteric cases and, as the patient observed, did not always seem to take particular precautions to clean up before treating him.

It seems probable that the amœbæ were introduced into the bladder by means of the catheter used, and that the slight trauma of the instrumentation employed in the course of the irrigation to search for a calculus furnished the favorable conditions for their growth and subsequent manifestation of their peculiar pathogenic properties.

The amebæ found in the urine did not differ materially from those usually found in the feces from the infected intestine. They varied from 18 to 30 microns in diameter and some of them enclosed from one to eight red blood cells. The motility was rarely as great as is often observed in similar parasites from the intestine, and most of them assumed the round stage quite rapidly if left in the urine at room temperature.

In addition to amabæ, the urine contained bacteria, principally bacilli of the colon group, some albumin, epithelial cells and frequently blood cells.

The reaction of the urine was taken several times and was found to vary from neutral (to phenolphthalein) to a decided acidity. The motility of the amebas did not appear to be materially affected in the more acid specimens of the urine.

As previously mentioned (Bulletin 18, Bureau of Government Laboratories), these amœbæ were cultivated. Growth was secured only once from a large number of cultures made at different times; and for no reason which can be explained at this time, these cultures died out in the third and fourth transplants.

In the presence of rectovesical fistulas and other diseases amœbæ have been found in the urine by several observers. During the past six years we have seen them under such circumstances five times. The instances, however, in which they have been found in the urine without a fistula or previously existing diseased condition of the gastrointestinal tract, are very few, and we believe this to be the first case reported where the manner of infection is clear and the evidence fairly definite that they were responsible for pathologic changes in the bladder. Posner's case somewhat resembled ours, and he concluded that the amœbæ were etiologically connected with lesions of the bladder and kidneys.

THE DISSEMINATION OF TUBERCULOSIS AS AFFECTED BY RAILWAY TRAVEL.¹

BY CHARLES B. DUDLEY, PH.D.,

OF ALTOONA, PA.;

CHEMIST OF THE PENNSYLVANIA RAILROAD COMPANY.

Not a few times during the past few years, and especially in this Association, the railroads of the country have been called quite sharply to account for their shortcomings in sanitary matters. Both in papers prepared for the purpose, and in the discussions which have followed, the indifference, to use a mild word, of the railroads to the public health has been pointed out, and in some cases pictures of conditions have been drawn which have had a tendency to arouse in the minds of the traveling public a belief that the railroads are potent disseminators of disease. The lack of ventilation, the lack of cleanliness, the failure to provide spittoons, the disregard of proper precautions in the cleaning of cars, both en route and at terminals, the failure to disinfect, the use of upholstery and carved or molded surfaces, instead of plain, smooth ones, the color of the hangings and blankets in the sleeping cars, the failure properly to care for the bedding appliances in these same cars, the failure properly to regulate temperatures in inclement weather, the fact that people affected with a communicable disease may at times be on cars

¹ Paper read at the Thirty-third Annual Meeting of the American Public Health Association in Boston, September 27, 1905.

with healthy people, the use of water and ice that may be contaminated, the possible danger from the common drinking cup, and the scattering of excreta along the track, have all been pointed out, and sometimes in language not too courteous, as sanitary sins for which the railroads were more or less responsible. Indeed it is, perhaps, not too much to say that many ordinarily well-informed people, by virtue of this agitation, have been led to believe that to take a trip on a railroad car is equivalent to incurring a serious personal risk to their own individual health.

In view of this state of affairs, it has seemed wise to spend some little time during the past two years in trying to get as positive and definite information as possible, as to how seriously these various lapses from good sanitary practices do actually threaten the public health. While other communicable diseases have not been ignored in these studies, and while considerable data and information have been accumulated in regard to several others, the principal study has concerned itself with tuberculosis and the dissemination of that disease as affected by railway travel. Tuberculosis being a very general term, it would perhaps be more correct to say that what will follow applies more definitely to that form of tuberculosis which affects the lungs and which is supposed to be disseminated by means of sputum.

It is obvious, we think, that the railroads can hardly in fairness be held responsible for the dissemination of a communicable disease, when such dissemination is a resultant of the meeting of the diseased with the healthy. This may not seem absolutely apparent at first sight. It may be thought and urged that the railroads have no right to expose their healthy passengers to danger of contracting disease from others, and that they should exclude from their cars all people affected with communicable diseases. Indeed, such demands have been made upon the railroads. It has been claimed that any person affected with certain diseases, for example, smallpox, diphtheria, whooping cough, typhoid fever, consumption, etc., should not be allowed to travel in the cars on a railroad. But the unfairness of such a demand will, it is thought, be evident after a few moments' consideration. While it is undoubted that the railroads have a right to exclude, and, for that matter, do exclude from their cars, people known to have contagious diseases, such, for example, as smallpox, it is entirely evident that the exercise of this right depends on correct diagnosis. To refuse transportation to a person or persons because they were suspected by the ticket agent or conductor of having a communicable disease, might entail serious consequences: Railroads are common carriers, chartered under the laws of the various States, given under those charters certain extraordinary powers, and at the same time, by virtue of those same charters, required to perform certain public duties, prominent among

which are the transportation of persons and property. It is not possible to refuse transportation except under certain well-defined conditions, and since neither ticket agents nor conductors are, or can be from the nature of the case, physicians, it is difficult to see how, at least under present legislation, transportation is to be denied even to those who may be affected with communicable diseases. The proper remedy for the state of affairs described, if any remedy is possible, would seem to be in legislation, making it a crime for those affected with certain communicable diseases, to ask for, or accept transportation from common carriers.

To apply this reasoning to the subject in hand. It seems clear that if the tröpfchen theory of the dissemination of tuberculosis, advocated by Flügge and his school, be accepted as to the potent means of the spread of this dread disease, the railroads cannot fairly be regarded as responsible for its dissemination. This tröpfchen theory, as is well known, considers the minute little droplets, or finely atomized portions of the sputum ejected during the act of coughing by a consumptive patient, which atomized material may be taken up by the healthy who are near the consumptive at the moment, as the principal cause at least of the dissemination of the disease. In few words, according to this theory, personal contact or nearness to a consumptive during the act of coughing is the condition which most largely contributes to its dissemination among the healthy. As already stated, if this theory is correct, it is difficult to see how, under present conditions, the railroads can be held responsible for the spread of the disease.

But it is to be confessed that the tröpfchen theory is not universally accepted. Indeed, if we read rightly, not finely divided fresh sputum, but pulverized dried sputum, floating in the air, is generally believed to be the most important means by which the disease is spread. The literature of hygiene is full of statements to this effect, and it is not necessary here to recapitulate them. If pulverized dried sputum is as potent as is believed, surely, then, it will be urged, the railroads have important duties in the premises.

Taking up this view of the case, it may be permitted to say that the time and study we have been able to bestow on the subject lead to the view that the dangers from infection, due to this cause, have been very greatly magnified, and that as far as the railroads are concerned there is very little evidence that the time spent by the ordinary passenger on either day coach or sleeping car cuts any figure in the acquisition of this disease. The following points seem to us to have some weight in sustaining this view:

1. It seems to be generally acknowledged that what is usually termed "prolonged exposure" is essential, as a general rule at least, for tuberculous infection. It is hardly possible for one who is not a physician to go into details and ex-

pand a point of this kind, and it is probably sufficient simply to mention it. But even the longest railroad journey, in intimate relations with a consumptive, could hardly be regarded as meeting the requirements of prolonged exposure, as they are commonly understood by the profession.

2. Tuberculous sputum is extremely difficult to dry. If we are right, ordinary exposure to air currents does not readily convert this material into a condition sufficiently dry so that it is easily pulverized. Moreover, in most of the experiments made to prove the virulence of dried sputum, the material was artificially dried, at higher temperatures than prevail in the places where sputum is usually deposited. Still further, if we are rightly informed, attempts to dry sputum for purposes of experiment, either in the direct rays of the sun or even in diffused sunlight, not infrequently result in sterilization of the material. It is not so easy to get virulent sputum dry enough to be readily converted into fine dust.

3. But, again, even though the material has been sufficiently dried, it is extremely difficult to pulverize. The dried sputum is more or less tough, tenacious and glue-like. It is well known that in laboratories where this material is being pulverized for purposes of experiment it is customary to put sand in the mortar, along with the dried sputum, to assist in reducing it to a fine state of division. Cornet, who has made many experiments with dried sputum and published a good deal on the subject, gives some testimony on this point, which is quite pertinent. He says, "Anyone who has himself tried to rub the well-dried sputum into atoms and to pulverize it very finely will agree with me that it is no easy task to produce a really fine powder which remains suspended in the air for some time. The strong statements that have been made up to now, that one has only to rub with the foot on the dried sputum to raise immediately a cloud of dust of infectious germs, are absolutely false."

4. Still further, even sputum which has been artificially dried, and is then beaten and rubbed up into a dust from the carpets on which it was, readily falls to the ground. The viscous material in which the tubercle bacilli are imbedded in sputum is relatively heavy, even when dried, and in fine state of division. Heyman's experiments seem to indicate that with the possible exception of cases where the disease germs are attached to very minute fragments of cotton or linen fiber, the power of the pulverized sputum to remain floating in the air is very small. In almost every case, even where the attempt was purposely made by artificial means to cause the artificially dried material to float in the air, after ten minutes none remained suspended, and in some cases ten-minute experiments gave negative results.

5. Finally, it is hardly fair to ignore the effect of light and air upon the vitality of this form

of disease germ. A couple of days of strong light, and four or five days of even diffused light, are believed to be sufficient to largely at least, sterilize tuberculous sputum, and since a railroad coach, from its construction, being long and narrow and largely windows, offers the best possible opportunities for the action of light and air, it would seem that the chances for the long-continued vitality of these bacilli, about which so much has been said, would in these vehicles be very much diminished.

The experimental data, on which the above statements in regard to the characteristics of tuberculous sputum are founded, have all been examined in their original form as published. Most of the data will be found in the *Zeitschrift für Hygiene*. The best résumé of the subject in English with which we are conversant will be found in the little book, "The Prevention of Consumption," by Alfred Hillier, Secretary of the National Association for the Prevention of Consumption (London), and published by Longmans, Green & Co. Dr. Hillier gives quite a number of references to the original sources of the information which he communicates, and in view of this it has not been thought wise to load this paper with references. The latest edition of "Bacteriology and the Public Health," by Geo. T. Newman (P. Blakiston's Son & Co.), may also be consulted with great advantage.

But there is another phase of this subject of the dissemination of tuberculosis by railway travel which will perhaps bear a few words. If railway coaches and sleeping cars are as much of a menace to the public health as we have been led to believe, would it not seem that this fact would appear in its influence on the health of those railroad employees who, from the nature of their occupation, spend quite a portion of their lives on these cars? In other words, if there is great danger of infection with tuberculosis by reason of the contaminated condition of passenger coaches and sleeping cars, ought we not to expect to find many cases of consumption among passenger train conductors, passenger brakemen, sleeping-car conductors, and especially among sleeping-car porters, who are supposed to be naturally predisposed to the disease, and who, from their occupation, spend more time in and are brought more intimately in contact with the supposedly dangerous bedding, hangings and dust arising from sleeping in these cars than any other people? These questions being suggested, we immediately began to search for information that would, if possible, throw some light upon them, and enable answers to be given one way or the other. Fortunately we are not entirely without data.

It is perhaps well known that during the taking of the last census, that for 1900, in the United States, in certain areas known technically as the "registration areas," data were obtained in regard to the number of deaths per 100,000 of population during the census year, from con-

sumption, and at the same time the occupation of those dying from this disease was given. Dr. George M. Sternberg, in his recent book, "Infection and Immunity," gives the following table showing these data:

	Per 100,000
Average deaths from tuberculosis for the whole registration area	187.3
Ditto for Bankers, Brokers and Officials of Companies...	92
" " Laundresses	94
" " Farmers and Farm Laborers.....	111.7
" " Clergymen	123.5
" " School Teachers, Female.....	126.0
" " School Teachers, Male.....	144.0
" " Railroad Employees	129.8
" " Dressmakers and Seamstresses	130.0
" " Policemen	136.7
" " Lawyers	139.8
" " Mill Operators	144.0
" " Physicians	158.8
" " Gardeners and Florists	186.6
" " Journalists	188.4
" " Carpenters	231
" " Masons	293
" " Bookkeepers and Clerks	308
" " Painters and Glaziers	319
" " Servants, Female	319.7
" " Sailors and Fishermen	333
" " Barbers	334.9
" " Cabinet Makers	359
" " Laborers	370
" " Servants, Male	430
" " Printers	435.9
" " Cigar Makers	476
" " Marble and Stone Cutters	540

It will be noted that, so far as these figures prove anything, railroad employees suffer quite considerably less from consumption than the average of the community, and, indeed, that they are only surpassed in immunity by five other callings in a list of twenty-seven occupations. On consulting the original data in the census reports, it was found that just exactly what is covered by the term "Railroad Employees" was not as definitely stated as could be desired, but in view of the fact that separate headings are given for officials of companies, for bookkeepers and clerks, for carpenters, masons, painters and glaziers, and cabinet makers, it seems perhaps fair to conclude that probably what are technically known in railroad language as "shopmen, clerks, and officials" were excluded, leaving the train employees, both freight and passenger, and probably the track force, to make up the bulk of those enumerated as railroad employees. Whatever the limitation of the term, it is evident that these data, as far as they go, do not indicate that railway travel, at least as far as it influences the health of the most exposed employees, is any serious factor in the spread of tuberculosis.

But again, official letters have been written to the Pullman Company, asking for any information that they might have on this problem. Unfortunately the Pullman Company has no statistics, but they say in writing that they have a large number of conductors and porters whose time of service in their employ has been continuous for a number of years, and that they have never known of either a conductor or porter acquiring any disease on a car, except one case of smallpox. Furthermore, personal conversation with a number of the oldest conductors, many of whom have been personally known to the writer for a number of years, and some of whom have been twenty years in continuous service, has

failed to find one who has known of a porter who had consumption, even among those longest in the service. It should, perhaps, be confessed that such data are not as definite as could be desired, but does it not seem fair to conclude, that if either coaches or sleeping cars were anything like as potent as many would have us believe in disseminating the great "White Plague," it would be impossible that employees, who spend so large a portion of their lives on these cars, would apparently so completely escape it. In other words, if these cars are so great a source of danger, it would seem almost incredible that there would not be enough of the employees taken with the disease, so that it would attract attention.

We fancy it will be urged, and indeed it has already been brought forward by some who maintain the view that railroad cars are a menace to the public health, that there is a very good reason why railroad employees do not acquire the disease on cars, and that is that these men are vigorous and robust, and well calculated to resist; that only such men can stand the hardships of railroad life. But it seems to us that this argument is a two-edged sword, which cuts both ways. It must be remembered that railway trainmen are, from the necessities of the case, subject to great irregularities in the taking of food and rest, are many times subject to long-continued strains and exposure, with insufficient food, and that these things are believed to be among the most potent causes that favor the onslaught of that form of tuberculosis known as consumption. Moreover, this view is confirmed by the records of the Pennsylvania Railroad Company's Relief Fund, which show that the freight conductors and brakemen are actually more subject to tuberculosis of the lungs than are passenger conductors and brakemen—it being well known that freight trainmen are more irregular in taking food and rest and subject to greater hardships, than the corresponding passenger trainmen.

Perhaps the most definite statistical record we have on the probable danger of infection from railway cars may be drawn from the records of the Pennsylvania Railroad Company Relief Fund already referred to. This fund is, as is well known, a beneficiary organization, contributed to by both the employees and the company. It now numbers over 80,000 members. Its benefits consist principally in payments from the fund, known as "Sick Benefits," "Accident Benefits" and "Death Benefits," that is to say, if a member of the fund is disabled by sickness, he receives for a period of time from the fund weekly payments, the amount of the payments depending on his grade in the fund; if disabled by accident, a larger amount is paid, and at death a lump sum is paid his family or heirs. The organization of the fund involves a corps of surgeons, who examine and certify the applicants for benefits, and very full statistics are kept. The fund has now been in operation eighteen years, all em-

ployees who desired to join being taken in without physical examination at the start. Later, physical examination, somewhat after the manner of insurance companies, was made a prerequisite of membership. The records now embrace over 350,000 cases of what is technically known as "disablement," which means that the man is sufficiently unfit for active duty so that he is entitled to benefits. These records have recently been carefully gone over, with the idea in mind of finding out what they show in regard to tuberculosis. The figures actually obtained are as follows:

	Per 100,000 per annum
Average disablement from tuberculous disease during the eighteen years of the records	230
Average disablement for Passenger Conductors	330
Average disablement for Passenger Brakemen	120
Average disablement for Freight Conductors	400
Average disablement for Freight Brakemen	170

It will be noted, first, that both passenger and freight conductors show a higher disablement rate than the average of the whole fund; second, that both passenger and freight brakemen show a lower disablement rate than the average of the whole fund; third, conductors, both passenger and freight, show a higher disablement rate than brakemen, and, fourth, as has already been stated, the passenger conductors and brakemen show a lower disablement rate than the corresponding grade of employees in the freight service. It is believed that at least two of the above rather anomalous results are easily understood when it is known that both passenger and freight conductors are among the older employees, and that probably most of them were taken into the fund at its inception, without physical examination. This will explain why the conductors show a higher disablement rate than the average, especially when it is known that the growth of the fund has been much more rapid during the later than during its earlier years. The large accessions during later years of members who had passed a rigid physical examination have brought the general average down. Second, the brakemen, both passenger and freight, are very much younger than the conductors, and a very much larger number of them have passed the physical examination. They should, therefore, show a lower disablement rate than the older conductors. The main point, however, as applying to the possible dangerous condition of passenger cars in the matter of dissemination of tuberculosis, is that the disablement of passenger conductors and brakemen is actually lower than that of the freight conductors and brakemen. If passenger cars are as dangerous as has been supposed, we should expect the reverse to be the case.

It may not be amiss to add that the records of the Pennsylvania Railroad Relief Fund show something also in regard to the death rate from tuberculosis of the employees we are studying. During the earlier years of the fund, many of the employees who developed tuberculosis left the service and were lost sight of, so that the data of those years are imperfect and do not represent

the facts. But during the last four years all cases have been covered, and the figures show as follows:

	Per 100,000 per annum
The death rate from tuberculosis of all members of the Fund has been	90
The death rate for Passenger Conductors	77
The death rate for Passenger Brakemen	52
The death rate for Freight Conductors	100
The death rate for Freight Brakemen	67

Here again, as in the previous case, the danger of tuberculosis, as measured by the death rate, is less for the passenger trainmen than for the freight trainmen, and in this case the passenger trainmen, both conductors and brakemen, show a lower death rate than the average of the whole fund. We think it is fair to say that the value of figures of this kind is the greater, the more carefully they are kept, and the longer the period of time which they cover; but it is certainly difficult to draw from these figures anything that indicates that passenger cars are a serious source of danger to the public health, so far as tuberculosis is concerned.

So much space has already been taken by what has preceded that it is only possible to refer briefly to the extremely valuable paper by J. J. Kinyoun, of Glenolden, Pa., on "The Bacterial Content of the Railway Coach." We wish it were possible to present here a full abstract of that paper. It is apparently the first really careful work done, at least in this country, in trying to get positive knowledge of the actual conditions of railroad coaches and sleeping cars, as to their liability to disseminate disease. There is, however, less occasion for regret that we are able to say so little about that paper, since it was published in full in the *MEDICAL NEWS*, of New York, for July 29, 1905. We may, however, mention that out of 14 examinations of carpet dust from cars, many of which were known to have carried tuberculous people, none showed the presence of the tubercle bacillus; out of 64 examinations of dust collected by means of swabs from the interior surfaces of similar cars, including seats, bedding, curtains and wood work, only one showed *Bacillus tuberculosis*, and this was doubtful; out of 96 examinations of air from similar cars, only one showed *Bacillus tuberculosis*; and out of 21 bacterial examinations of material obtained from drinking cups, none showed this same bacillus. Dr. Kinyoun is very modest in his paper, and calls for more work along this line; but we cannot help feeling that a careful perusal of his paper will give very little comfort to those who think that sleeping cars, even those engaged in transporting tuberculous people to sanitary resorts, are a serious element in the spread of disease.

This brings us, in conclusion, to a few experiments of our own which have given results so contrary to the teachings which at present prevail in regard to their subject-matter, that we almost hesitate to bring them forward. After quite a little thought we have, however, concluded to do so, with the hope that others will

repeat them, and either show where we are wrong, or confirm our data, and thus help to modify the present trend of hygienic teachings upon this matter.

It is well known that there has been, and apparently is now, a general belief among sanitarians, that the upholstery of passenger coaches and sleeping cars is a serious menace. The outcry against upholstery has embraced the hangings, the carpets, the plush coverings for seats and the blankets in sleeping cars and the plush on the seats, and the carpets or matings in the aisles of passenger coaches. The philosophy of this outcry seems to be that smooth, hard surfaces are easily cleaned, while upholstery of all kinds is not easily cleaned and may serve to retain tuberculous sputum as a constant menace to those who are brought in contact with it. On the other hand, it occurred to us that plush, carpet, and the various upholstery in use in passenger and sleeping cars, might retain the infectious material much better than a bare, smooth surface, and that there might be less danger both of the material becoming dried and of its being stirred up into the air from a carpet or from upholstery, than if smooth, hard surfaces only were present.

In order not to have this matter wholly a question of opinion, the following experiments were carried out. The resources of our bacteriological laboratory not enabling us to experiment with tuberculous sputum, some flour paste of about the thickness of tuberculous sputum was made, putting into the paste a certain amount of common salt in order to have in it something which was measurable. This paste was put in equal amounts on, first, pieces of glass; second, pieces of carpet, and third, pieces of plush. The three series of objects were then allowed to dry in the air. It was found that the paste on the glass dried more readily than on the plush or the carpet, which is what would be expected from previous experience with the hygroscopic nature of fabrics. The drying in the air was so slow, however, that ultimately all three series were dried artificially over the steam table. After they were thoroughly dried, a heavy iron roller was passed over each one of them the same number of times, the idea being to simulate the conditions of grinding up tuberculous sputum under the foot. Some of the samples were then put in the window to be subject to the wind, so that it might blow away as much of the material as it would, and some were put in a box and blown upon with compressed air. The three kinds of samples were treated exactly alike in all the experiments. After all the pulverized material that it was possible to remove by the compressed air had been blown away, each of the three kinds of articles was carefully washed, and the amount of material left behind in each case, as measured by the salt, determined. The average of a number of experiments showed as follows: On the glass 64.60 per cent. of the paste had been blown

away, while on the plush and on the carpet, only 12.50 per cent, had been blown away. These figures can be stated in another form. On the glass over one-third of the material staid behind, while on the plush and on the carpet, seven-eighths of it remained behind.

We cannot help feeling that these experiments point very clearly in the direction that the danger of infection from upholstery in Pullman cars and coaches is very much less than from naked surfaces, and that the crusade against hangings and carpets and plush is not founded on careful experimental data.

It gives me great pleasure to express my indebtedness to Mr. M. E. McDonnell, Bacteriologist of the Pennsylvania Railroad Company, for assistance in preparing this paper.

A GENERAL CONSIDERATION OF THE CONTAGIOUS DISEASES OF THE SCALP AND SKIN OBSERVED IN CHILDREN OF THE PUBLIC SCHOOLS.

BY JACOB SOBEL, M.D.,
OF NEW YORK.

IN an article on "The Relation of School Methods to School Diseases," Drs. W. J. Herdman and J. St. McBride (*Journal A. M. A.*, April 15, 1905) say, "It is a public duty devolving upon the local government of any community to guard in every possible way the health and happiness of its members. When, either voluntarily or by compulsion, the children of any such community are brought into close contact and intimate relations, as in the schoolroom, both public safety and individual right demand that all danger arising from such relations should, as far as possible, be suppressed.

"Some of the most dangerous and destructive diseases can become widespread and epidemic through the close association of children in the schoolroom with but one case of such disease. It therefore becomes the imperative duty of the official guardians of the public health and of boards of education to unite in the adoption of means for the suppression of diseases which might through the association of children in school become prevalent. This is very generally recognized as the primary duty of the medical school inspector and is of itself abundant reason for the appointment of such an official. The evidence which can be adduced in support of the benefits conferred on a community as a direct result of this inspection are overwhelmingly convincing."

Contact with a large number of school children during the past few years has impressed upon me the importance and desirability of a rapid cure in those dermatological affections which are classified as contagious, and which for that reason have necessitated in the past, the exclusion of these young patients from the classroom, and at present require regular and sys-

I Read before the Society of the Medical Inspectors of the City of New York, October 3, 1905.

tematic treatment at the hands of a physician or the school nurse. The vigorous campaign instituted by the Department of Health of New York City, through the corps of medical inspectors, against all elements of contagion, has resulted in increasing the service at the dermatological clinics as it has at the various hospitals and dispensaries devoted to ophthalmology. In my dispensary and private work, both past and present, I have noticed repeatedly that the vast majority of pupils have taken to heart their temporary exclusion or those visits to the nurse which interrupted their regular routine of work, and that any measures which restored them quickly to their classrooms were highly appreciated both by them and by the teacher in charge.

It is therefore to a consideration of the more usual contagious and parasitic diseases of the scalp and skin, but more particularly to their treatment and to some general remarks upon exclusion, that I invite your attention and criticism.

By far the most common condition met with is, as you know, *Pediculosis capitis*. Its diagnosis requires neither great care nor skill, although tenacious dandruff strewn along the shafts of the hair has been looked upon as ova or nits. In discussing the various phases of medical school inspection with one of our confrères, I was told that *Pediculosis capitis* is a "dead issue." When one considers, however, that a "single female pediculus will have 5,000 descendants in eight weeks," the question appears a real live one. A satisfactory treatment of this condition, one that will fulfill all requirements, is a great desideratum; and yet, in spite of continued experimentation with all kinds of methods and medication, this most perplexing problem remains unsolved. As one official connected with educational circles said to me, "the inspector may come and the nurse may go, but the nits seem to increase forever." I do believe that the systematic examination by inspectors and nurses as heretofore adopted has had a great moral effect upon parents and pupils, but it has not produced an amount of good proportionate to the time and labor expended. It is remarkable in a way that, with all the aids at the command of the department, so little, relatively speaking, has been done to eradicate what I might almost term the nit plague; and yet, while we must admit that the outlook is very discouraging, we must not overlook the fact that the problem is one of huge proportions and can be solved only by time and education. So many drugs have been tried by our corps and by the nurses that to enumerate those untried would appear the easier task. By way of illustrating the eagerness of those associated with the work, I will mention a partial list of those which have been used either for the purpose of killing the pediculus or loosening its ova—kerosene, crude petroleum, *Delphinium staphisagria*, bichloride,

carbolic, spirits of camphor, vinegar, alcohol, ether, carbene, benzine, nitine, nitoff, *Coccus Indicus*, acetic acid, sandpaper, sulphur, mercurial ointments, essential oils (anise, cinnamon), borax, potash solutions, and others.

Treatment varies with the stage of the disease and the condition of the scalp. If the pediculi themselves are present, our efforts must be directed toward their destruction. For this purpose, nothing answers better than crude petroleum or kerosene, preferably the former. In their application, care must be exercised lest an annoying dermatitis result, and therefore it is advisable to dilute them with olive oil. In twenty-four hours most of the pediculi are dead and a majority of the ova are incapable of development. Spirits of camphor, if judiciously applied, will kill many pediculi and stupify others so that they may be removed readily with a fine-toothed comb. If objection be raised to the foregoing because of the odor, I use the tincture of delphinium in hot vinegar (1:3), bichloride in hot vinegar (1:2,000, 1:500 or 1:1,000, depending upon the sensitiveness of the scalp, or bichloride of mercury gr. i; tinct. staphisagria 5 iv. In pediculus dermatitis, that is, those instances in which we find papules, pustules, excoriations and crusts with the formation of a moist exudation and the agglutination of hair, more particularly in the occipital region, a combination such as the following, recommended by Kaposi, will be found very efficacious:

℞ Balsam Peru	20.0
Olive oil	50.0
Crude petroleum	100.0

To be applied twice daily.

Sometimes a 5 per cent. white precipitate ointment will prove useful in these cases, and Laszar speaks in highest terms of

℞ Hydrargyri sulfurati rubri.....	1.00
Sulfuris sublimati	24.00
Olei bergamottæ	gr. xxv
Vasellini flavi	ad. 100.0

M. Ft. ungt. D. S.

Apply twice daily.

In passing, I desire to call your attention to a condition of the eyelids occasionally met with in school children which, upon hasty inspection, is apt to be considered a blepharitis marginalis. It is pediculosis pubis of the eyelids, for, strange as it may appear, the pubic louse has its habitat here as well as in the pubic region. In a few instances I have seen not only the eyelashes literally black with ova, but I have observed the pediculus itself. Treatment for this condition consists in softening the lashes with olive oil and then applying an ointment of the yellow oxide of mercury, 5-10 grains to the ounce.

It is with the nits that the great obstacle is encountered, for the destruction of the pediculus is relatively easy. The difficulty with the nits is that they are glued to the hair by a material secreted by the louse for which no one

has yet succeeded in finding a good solvent. In boys, where the scalp is markedly involved, where treatment is inefficacious, or where directions are not properly followed, clipping of the hair gives the easiest and most satisfactory results. Unlike the girls, they will offer no objection, nor will they become the subjects of taunts from their classmates. With girls, clipping the hair should be the last resort. Tight braiding in the classroom and unbraiding at home for care or treatment should be insisted upon. We have tried many applications for removing these ova, and yet I am not in position to offer you *any one drug* which holds out any hope of rapid removal. In fact I am of the opinion that all medication is but an aid to the one and only successful method—mechanical means. Patient, persistent, painstaking removal of the nits strand by strand, with the hand or fine comb, is to my mind the only plan for pronounced cases.

For some time I have been interested in the mechanical removal of these ova, and with this end in view I have had constructed a little hair rake. It constructed on the basis of a fine-toothed comb, but differs from it in that each tooth is notched. With this instrument it was hoped that not only would numerous ova be caught between the teeth, but that those escaping their grasp would fall in the notches. The end of the rake is somewhat curved, and herein, I believe, lies the cause of its partial failure, for I must confess that the little instrument has disappointed me somewhat. Theoretically, I feel it to be correct, and I believe that with the end straightened it may still prove a success.

After all has been said, it seems to me that there is but one solution to this problem, and that lies in the education of the mothers by monthly meetings held at the schools under the joint jurisdiction of the educational and health authorities. In this way it can be explained that for mutual protection and for a possible control of the condition, it is not only necessary to look after the cleanliness of the school child or children, but after all members of the family and all articles of clothing. When I tell you that at a recent mother's meeting, held under the auspices of the Misses Baum and Francis, some 800 mothers were present, you must admit that the plan is feasible; and as all principals and educators agree that one solution of the problem lies in reaching the homes, what more practical way can be suggested? Great things move slowly. It took years before the tenement house population could be educated to the fact that in summer diarrhea the first indications were to stop all kinds of milk and give castor oil; yet they have been taught, and the mortality of diarrheal disease has visibly diminished. So, by a campaign of education, I believe that in years to come we shall see light in the solution of this discouraging problem.

Closely connected with the previous condition, and, indeed, in most cases dependent upon it, is

impetigo contagiosa. Although usually attacking the face, chin, cheeks or forehead, it may occur on other exposed parts, or, in fact, on any part of the body. It begins as a small, flattened, vesicopustule, sometimes umbilicated, situated on a perfectly normal skin or with a narrow, inflammatory halo or zone; this increases in size, bursts, and forms a thin, yellowish, adherent crust which looks, as Tillbury Fox says, "stuck on." One spot may give rise to several others by auto-inoculation, and in some instances a large part of the body may be involved. It is highly contagious and may be conveyed to others.

In most cases treatment is simple and effective; it is only the generalized eruptions which prove rebellious.

The removal of the contributing or underlying factor—*Pediculosis capitis*—and cutting the nails as short as possible, are the first indications. Medication of the lesion must be preceded by a softening of the crusts with a saturated solution of boric acid or with olive oil, plain or salicylated (2-3 per cent.). For localized spots a protective dressing of ichthyol collodion (10 per cent.) is best. The individual lesions then heal kindly and dissemination is guarded against. Some may object to this treatment if the lesions are on the face in close proximity to the scalp. The remedy *par excellence* for impetigo contagiosa is the white precipitate ointment. The official preparation (10 per cent.) diluted to half strength with boracic acid ointment or unguentum diachyli acts practically as a specific. It is needless to say that all toilet articles belonging to the patient should be carefully isolated from other members of the family.

Trichophytosis, tinea or ringworm, is a rather frequent disease. It is interesting and instructive to note the number of regions which this affection attacks. The two general divisions are ringworm of the body (*tinea circinata*) and ringworm of the scalp (*tinea tonsurans*). In ringworm of the body any part may be involved. I have seen it on the upper and lower lid, in the concha of the ear, in the preauricular region with extension into the concha, at the angle of the jaw, over the bridge and at the tip of the nose, in the supra- and infra-orbital region over the pomum Adami, back of hand, buttocks, chest, etc. This localization of the lesion is somewhat important from a therapeutic standpoint, as will be observed when treatment is considered. The diagnosis of trichophytosis corporis is relatively easy. The oval or circular configuration, the elevated margin, sometimes papular, sometimes vesicular (*herpes tonsurans vesiculosus*), the healing and scaly center, the possible history of contagion or of association with domestic animals (dogs, cats, birds, etc.), and the presence of the trichophyton will cover the ground. Another form, not infrequent, and more dangerous from the standpoint of contagion because it is generally looked upon as

eczema, consists of more or less irregular, scaly, ill-defined, eczematous-looking patches on the face; sometimes three or four cases are found in one classroom. These cases are, in my opinion, ringworm, and do not respond to soothing or mildly stimulating medication. They require anti-parasitides, and nothing answers better than white precipitate or sulphur ointment.

Ringworm of the body responds far more quickly to therapeutic measures than scalp ringworm. Even so, the laity do not as a rule expect rapid cures in this condition, so that any means which will afford a speedy and ready disappearance of the disease will be welcomed. The method which I have adopted with gratifying results is the use of formalin. When properly diluted and carefully applied, one need fear no disagreeable effects. Two or three applications of the forty per cent. solution, diluted two or three times, has repeatedly in my hands cured the affection of the body. In a skin which is particularly sensitive it is wise to avoid vigorous rubbing. If the smarting or burning is intense the application of ammonia water, by its neutralization, will afford relief. A one per cent. picric acid solution in the form of Esbach's reagent, or Liquor Burrowii is also valuable for the burning and smarting. If the ringworm is situated on the lids or in close proximity to the eye, this method is inadvisable; the formalin fumes are too apt to set up an acute conjunctivitis. I have never observed any serious dermatitis from the judicious use of this drug. A five per cent. ointment of the ammoniated mercury or of chrysarobin, or the latter in colodion or traumaticin will also effect a cure, and tincture of iodine and carbolic acid are favorite remedies with many.

Ringworm of the scalp or tinea tonsurans is an affection more likely to escape detection than ringworm of the body, and one which on account of its persistency and obstinacy will test the patience and skill of the physician. Diagnosis in the localized form is based upon the circular outline and scalliness of the patch, the broken, dry or gnawed-off hairs, the irregular feel to the touch, and the presence of the trichophyton. However, alopecia areata and folliculitis decalvans or abscedens must be differentiated. In alopecia the patch is bald and smooth; there are no broken hairs in the patch, there is no history of contagion, and the trichophyton is not found in the hairs taken from along the border. Folliculitis decalvans is a secondary affection due to infection. The bald areas in this condition are the result of suppuration, and there is the previous history and absence of mycelia and spores to aid in arriving at a diagnosis. At times ringworm of the scalp appears in the disseminated form, presenting many small areas of scaly, dry spots without much apparent loss of hair. This form is frequently mistaken for eczema or dandruff and when treated as such not only fails to respond, but spreads the disease

among others. I feel constrained to say that there are some cases of this kind in the schools at present which are overlooked. It is difficult to imagine a condition in which therapy proves more thankless than in tinea tonsurans. Weeks, months and often years pass by without any appreciable result. It is only natural, then, that many drugs have been recommended and tried. Fox, in speaking of this condition, says: "When we consider the time, trouble and expense often involved in getting rid of ringworm of the scalp, the custom of many physicians who carelessly prescribe and allow a patient to infect others through his neglect or inefficient treatment can only be characterized as criminal malpractice." Since it is highly contagious, isolation from others is clearly indicated. Nor is it probable that success will crown our efforts unless the hair of the scalp be cut very short; cut, not in the barber shop, to disseminate the disease, but at home or at the dispensary. This is a *sine qua non* for efficient treatment. Each child is to have its own toilet articles—brush, comb, towel, soap, etc.—and nightcap, and should sleep in a separate bed, if possible. Too frequent washings are to be avoided, but the scalp ought to be shampooed at least every other day. Epilation is to be practised daily, a tedious and difficult procedure, but one of the few calculated to be effective. Formalin solution of 40 per cent. diluted two or three times, and applied with care, omitting the treatment occasionally if irritation is produced, will prove useful. Chrysarobin ointment of 5 per cent. is valuable if its action can be limited, that is, if it is applied only to the diseased areas. Its careless use on the scalp not only gives rise to a severe and diffuse dermatitis, but also to a disagreeable discoloration of the hair. The white precipitate ointment is devoid of these objections and, while less potent, sometimes proves effective. Pyrogallie acid, turpentine, carbolic acid, anthrarobin, nitrate of silver, trikresol and others have been tried with varying results. In recent years Jackson has lauded iodine crystals in good goose grease (15-25 per cent.) because of its excellent penetrating power.

The future will decide whether Finsen therapy and the X-ray cure this affection. Gottheil (*Ph. Med. Jour.*, January 15, 1903) notes some success with actinotherapy in two cases recorded by Finsen.

In connection with the subject of ringworm I desire to call your attention to a form of sharply defined and margined eruption occurring on the upper or lower lip, or both, in school children, and which I believe may bear some relation to eczema marginatum. This eruption is caused by lip sucking or by the intermittent protrusion of the tongue and its excursion over the upper and lower lip. In this way, a constant source of irritation is produced, and a favorable soil, one of moisture, for fungus growth, is afforded. The white precipitate ointment diluted

as before will prove useful, but the first step must be the control of the lip-sucking habit.

Scabies, known by the laity as "the itch," and as such dreaded by principals and teachers, is not uncommonly diagnosticated as eczema. From a therapeutic standpoint such an error is a valuable loss of time, because of the rapidity with which the disease responds to proper measures. Treat scabies as an ordinary eczema and the disease will make rapid strides or will become greatly aggravated. The existence of papules, papulo-vesicles, or pustules on the back of the hands, in the interdigital regions, on the anterior surfaces of the wrists and axillae, on the genitals, the presence of the cuniculus or burrow, the non-involvement of the face, the history that the condition becomes worse, that is, itches more when the patient retires and is covered with the bedclothes, and the existence of the disease perhaps in other members of the family, means scabies. In prolonged, untreated, or improperly treated cases the picture is somewhat modified on account of the secondary effects of scratching.

The treatment of scabies is simple. I have followed the plan of Sherwell with considerable success. After a preliminary bath with green soap and hot water, the patient is furnished with powdered sulphur, and instructed to rub it thoroughly into the affected regions—fingers, interdigital folds, wrists, elbows, pectoral regions, breasts, abdomen, genitals, thighs and legs—twice daily, and to dust a quantity into the bed sheets before retiring. I know of nothing which proves more effectual at the onset of the disease, more especially for the relief of the intense pruritis, than this powdered sulphur. It is far more cleanly than the officinal sulphur ointment, far less irritating and more rapid in its results.

If eczematous patches are present and after the itching has been controlled, an ointment recommended by Kaposi and known as *unguentum naphtholi compositum*, is very efficacious. It is composed as follows:

R. Betanaphtholi.	
Cretae albae	aa 10.0
Saponis viridis	50.0
Axungiae porci	100.0

M. Sig. Apply to the affected areas twice daily.

As Walker states, "the chalk aids mechanically in the opening up of the burrows and the soft soap helps the penetration of the naphthol along then." I have been in the habit of using the sulphur treatment at the very beginning and following it by the aforementioned ointment.

Molluscum Contagiosum or epitheliale is frequently overlooked or considered as a simple verruca. Owing to its contagious nature, it is important that it be recognized and removed at the earliest possible moment, for it is not only auto-inoculable but hetero-inoculable as well. Its origin is uncertain, but the statement of Shattuck—that it occurs in birds, pigeons, sparrows and domestic fowls—may shed some light.

Mollusca may appear on any part of the body, but the face, chin, neck and hands are the most frequent sites involved; they occur rarely at the vermilion border of the lip or on the mucous membrane of lips and cheeks. There may be one or many, appearing as small, medium or large, elevated, round, or flattened masses, of normal color or slightly red, with a small capillary passing over them occasionally, and with a small central depression from which on pressure or puncture a small quantity of semi-solid cheesy matter may be expressed. It is this central umbilication which differentiates the condition from an ordinary wart. Occasionally infection takes place in these lesions and gives them the appearance of a large pustule or a furuncle; other typical lesions, however, dispel all doubt as to its true nature. Most of them are sessile. Exceptionally they are pedunculated.

The treatment of these mollusca is removed with the small curette or scissors or puncture and expression. Bleeding is slight and readily controlled by pressure or the silver stick. Scarring does not take place. The white precipitate ointment sometimes effects a cure, and infection, as stated above, often causes their disappearance.

Favus is relatively infrequent in New York City, and yet among the people of the lower east side and in the schools attended for the great part by Russian and Polish children it is not uncommon. Out of 5,000 consecutive cases of skin disease treated at the Good Samaritan Dispensary, Allen (*Med. Record*, Oct. 27, 1898) found 139 cases of favus, an "unprecedented number for this country," as he says. The typical case of favus of the scalp, with its dry, yellowish crusts pierced by hairs, its cup-shaped depression, and the bald, depressed spots due to atrophic scars, is a clear-cut picture. I have omitted the mouse-like odor as of diagnostic importance because in my experience its presence is the exception rather than the rule. Fox states, "while it is true that in a neglected case where the crusts have accumulated, a keen scent combined with a vivid imagination may perceive a fragrance which is quite suggestive of 'mice,' 'putrid urine,' or 'an ill-kept menagerie,' the diagnosis can be far more readily made from the characteristic appearance." But the scalp is not the only region attacked. Within the past year I have observed lesions of favus in the interscapular region, on the forearm and on the nails. It has been claimed that this disease is "imported," and its presence on immigrants bars them, according to the law, from entrance into New York City. Despite rigid laws, I have personal knowledge of several cases permitted to land in this city with the disease in an active stage. But the foreign born are not directly responsible for all cases of contagion. At a meeting of the Manhattan Dermatological Society of New York City, Dr. E. L. Cocks pre-

sented a girl of about twelve years with a typical favus of the forearm and at the same time he showed a mouse that had been rambling about the house for some time with absolutely characteristic lesions of the disease, both in appearance and location.

The mouse had become blind owing to involvement of the lids and was made a house pet by the child and handled daily.

In the treatment of favus, after giving careful instructions to the parents concerning the danger of contagion and the necessity of long and persistent treatment, have the hair cut close to the scalp with a pair of clippers. As in tinea tonsurans, do not tell the mother to have this done, for if you do she will surely proceed to the nearest barber shop and render his machine a veritable hotbed of infection. I do not hesitate to say that in some instances observed on the lower East Side the infection was carried in this way. Have the mother do it at home or cut it short at the dispensary. I have done this repeatedly when assisting Dr. Allen, the machines being kept in pure lysol and washed thoroughly in hot running water before using. If the crusts are thick and adherent they must be softened and removed by a 2 to 3 per cent. salicylated or carbolized oil or with a 1 per cent. naphthol oil, as suggested by Joseph. Epilation is next in order; no force is necessary here, for, unlike the condition in ringworm of the scalp, the diseased hairs are easily loosened, bulb and all. If difficulty is experienced, the probability is that particular hair is not diseased. This method must be carried out for a long time regularly, completely and thoroughly. The scalp is then painted with a 5 to 10 per cent solution of chrysarobin in collodion or traumaticin, or an ointment of the same strength is applied, evidences of pronounced dermatitis being carefully watched for. It is claimed for the collodion chrysarobin that, apart from the effects of the latter, the collodion, by forming a more or less impermeable dressing, precludes the air and thus inhibits the growth of the *Achorion Schoenlein*, which is said to be inert in an anaerobic medium.

I have dwelt at some length upon the treatment of these conditions, because it has seemed to me that if rapid and lasting results are to be accomplished in these cases, more active measures than heretofore should be adopted. I cannot conceive of scalp ringworm and favus being successfully treated at the school, even by daily visitation to the nurse, when these cases linger for months despite individual attention at the hospital or dispensary.

So much for the diagnosis and general plan of treatment of the contagious diseases of the skin and scalp most commonly met with in our line of work. In conclusion there remains something to be said upon the question of dealing with these conditions in so far as their exclusion from attendance at school is concerned. I am not in a position to quote statistics as to the number

of contagious skin diseases in the public schools at present, when the children are treated by the nurse, as compared with that of former years when the pupils were excluded. While I am of the opinion that a limited impetigo ringworm of the body or molluscum contagiosum, when properly protected by a collodion dressing, may remain in school without danger of infecting others, it seems to me that in disseminated types of these conditions, as well as in scabies and in ringworm or favus of the scalp, the possibility of contamination is so great as to warrant serious consideration. In approaching this subject, however, we must not lose sight of the fact that we are dealing with an American or an Americanized people and that any infringement upon what they consider their "personal liberty" or their "constitutional right" will be hotly contested. As the matter stands, the courses open to the department are (1) The present one—permission to remain at school, in the classroom with others, so long as they are treated regularly by the nurse or by a physician; (2) isolation in the classroom apart from the other children; (3) exclusion from school until cured.

Taking up the latter question—exclusion from school—specialists seem inclined to be in accord as to the advisability of exclusion from school or as to the separation of cases of favus and ringworm of the scalp into separate school buildings.

Thus Fox says: "It seems hardly necessary to add that no child with ringworm should be allowed to attend school. If our City Board of Health could make provision for a periodical inspection of the public school children with a view to checking the spread of ringworm and other contagious diseases, a considerable amount of suffering and expense could be saved to a certain number of scholars and their parents. Furthermore, if some careless physician were sued for malpractice for allowing an uncured case of ringworm or favus to attend school, simply because upon hasty inspection, without the use of a microscope, he thought the child was all right, it might be unfortunate for the physician but by no means a bad thing for the profession."

Allen writes: "I have advocated the establishment of a favus school for these children, to keep them apart while under treatment."

Malcolm Morris states: "Ringworm could be stamped out if every case were properly isolated and if doctors were more careful in giving certificates of cure. No certificate should be given until the complete and permanent disappearance of the fungus has been proved. All children should be carefully examined by a competent observer before admission to school, public or private. For children suffering from obstinate forms of the disease special schools might with advantage be established, as I suggested in a paper read at the International Congress of

Hygiene held in London in 1891. In Paris such a school has been in existence for some years, and the results have been highly satisfactory."

Gottheil, in a personal communication, writes: "I am very decidedly of the opinion that scalp diseases of contagious nature—folliculitis, favus, ringworm, etc.—are much more prevalent in the East Side of our city than is generally supposed; I think that I can prove this by the records of the institutions with which I am connected. I am also sure that many of these cases are never cured, but go on for years as a continuous source of new infections.

"Most of these cases can only be radically cured by vigorous treatment several times a day, and persisted in for many months. This means, of course, hospital care. I have taken a few of them on my service, and they have usually stayed there at least six months.

"I have repeatedly stated, both in medical societies and in personal interviews with Dr. Darlington, that a combined school and hospital, on the model of the celebrated École Laillier at Paris, is in my opinion the only method of handling these cases successfully. I know that there are difficulties in the way of securing the necessary co-operation of the Education and Health Departments for the purpose, and obstacles on the part of the parents themselves."

Dr. Herdman says: "I am unable to give you any references to localities where the skin diseases of which you speak are diseases mentioned among the affections which exclude children from attendance upon school, but I know that it is quite customary on the part of the school inspectors throughout Germany, France and in many places in this country, especially in Chicago, to look upon children suffering from the contagious and infectious skin disorders as fit subjects for exclusion. This has been the practice in Chicago, and I have seen it mentioned as the subject of consideration by the inspectors and health officers in Providence, Rhode Island, and in Boston, but I am unable to give you the exact references at this time. I regard the diseases you have mentioned to be such as should come under the ban of the inspectors, for while they are not so serious as many other communicable disorders, they are sufficiently annoying and degrading, and by attention being called to them in this manner and proper treatment suggested and applied, this would prove one of the most effectual means for eradicating them."

In New York City, where the schools are taxed to their limit, where they lack classroom instead of having room to spare, separate schools or rooms for these patients is a difficult problem. Again, these cases occur in children of different grades and in all parts of the city, so that one would be forced to have ungraded classes or many classes with few numbers, both of which would probably meet with the opposition of the Board of Education.

I recognize the fact that in favus and ringworm of the scalp, where treatment to be successful must at best cover a period of months, perhaps years, *exclusion is a serious problem from an educational standpoint*, and while I would not go so far as to say that all these children should be segregated into separate schools or classrooms—a plan which is hardly feasible—I do believe that these children should be compelled to sit apart from the other pupils, to keep their clothing separated, or they should be excluded from school until they are cured.

The danger of scalp diseases is greater with the girls than with the boys. The latter keep their headwear—for the most part caps—either in their pockets or in their desks, while the girls' hats are kept together in one closet. These children only too frequently apply their hands to their heads, and in this way carry the contagion to the papers, books, and other articles that pass from child to child.

The mere mention of the words "the itch" to principals and teachers causes a shudder, and I have known principals to exclude children on their own responsibility because of the fear that the disease would be conveyed to others. I have advocated the wearing of white cotton gloves in the classroom, but, unfortunately, my advice has not always been heeded.

After all it is better to exclude or separate the few than to infect the many.

Prophylaxis is the keynote of modern medicine, and in the prevention of disease medical school inspection, thoroughly and systematically carried out as it is in New York City, may be considered one of the great advances of the present century.

274 Lenox Avenue.

A NEW SUPPORTER AND POUCH FOR THE AFTER-TREATMENT OF ARTIFICIAL ANUS.¹

BY JOHN H. GLEASON, M.D.,

OF MANCHESTER, N. H.;

ATTENDING SURGEON TO THE ELLIOT HOSPITAL; SURGEON TO THE HOSPITAL, NOTRE DAME DE LOURDES.

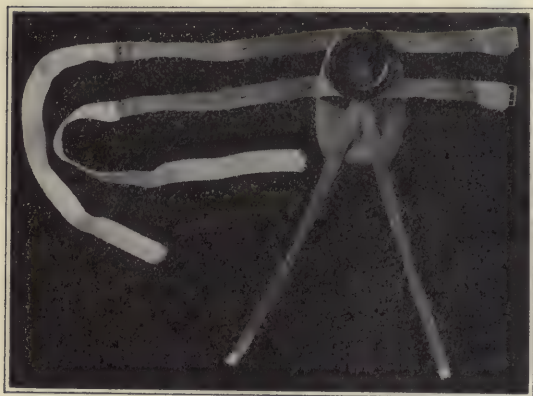
It is unusual in intestinal obstruction that surgical procedures are adopted in time to relieve the patient, with any degree of safety, by means of radical measures. In the majority of instances the surgeon is called late on account of the uncertainty in diagnosis and from the tendency to rely on medical resources. It is common, therefore, to find the individual in poor condition from vomiting, pain, loss of sleep, lack of nutrition and the toxemia of intestinal accumulation and distention. The surgeon must then decide between a rapid exploration and enterostomy, with possible recovery, and a completed operation with probable death.

Such an enterostomy may result in a temporary or permanent artificial anus, depending on the nature of the pathological condition present. The

¹ Read before the New Hampshire Surgical Club, at Center Harbor, August 7, 1905.

artificial anus may be situated in the median line, in the line of the rectus, or in the iliac or lumbar regions. It is for the treatment of these classes of temporary or permanent artificial ani that I have designed the supporter and pouch, herewith described. Some four years ago in looking about for an apparatus for use in the after care of such a case, I found there was nothing available that was specially devised for an artificial anus. Such apparatus as could be found

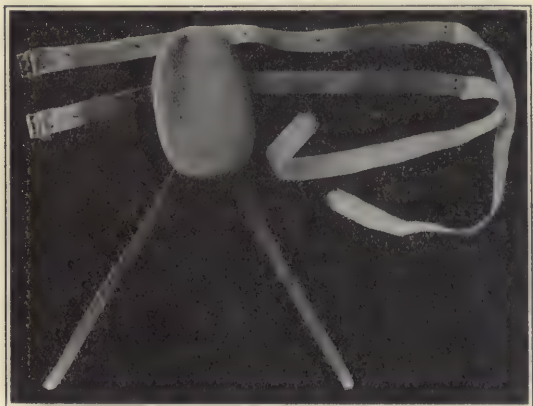
Fig. 1.



was composed in part of rubber tubing and adapted primarily for the condition of extroversion of the bladder. This, of course, was not an ideal instrument, as the tubing could not be kept open, clean and free from odor.

It seemed to me that a servicable article for such a purpose would be a simple pouch that would retain a small or large amount of fecal matter, one that could be easily cleaned and de-

Fig. 2.



odorized, and also one that would be combined with a supporter for the abdominal wall, thereby overcoming the tendency to hernia.

With this idea in mind the apparatus as represented by illustrations Nos. 1 and 2 was evolved.

Fig. 1 represents the external surface of the pouch, the two circular fixing and retaining body straps and two perineal straps. Fig. 2 shows the internal surface, made up of a hard rubber

(vulcanized) ring, to which the pouch and straps are attached. The ring has a slightly convex articulating surface adapting itself with moderate pressure perfectly to the skin. This method of adjustment makes the pouch air-tight and prevents leakage. The ring is one inch in thickness, which allows sufficient space between the opening of the artificial anus and the anterior surface of the pouch to permit fecal matter to pass freely forward and downward.

The pouch is made of well selected and rather thick pliable rubber, and it and the circular and perineal straps are bound and cemented firmly into the concave rim of the ring. The total diameter of the ring is three and three-quarter inches, the diameter of the opening into the pouch being two and one-quarter inches. The length from the lower rim of the ring to the convexity of the pouch is four inches, the total length over all, rim and pouch, being seven and three-quarter inches. The perineal straps are composed of heavy elastic rubber. The body straps are also made of rubber, but are supplemented with ends of cotton webbing to facilitate buckling.

The articulating surface of the rubber ring is three-quarter inch in width, and makes an efficient circular retaining support for the muscles surrounding the wound. This I have found to be quite an important feature.

The apparatus is very easily cleansed and deodorized. I am in the habit of irrigating it with a solution of soap and water, then following with a saturated solution of borax, afterward deodorizing by immersing it a short time in 1 to 40 carbolic acid. A pouch of this design should be used with both perineal straps for a median or rectus incision and with one perineal strap for an iliac incision, using the strap on the affected side.

A pouch to be adapted for a lumbar wound should be constructed with a ring slightly concave on itself in order to fit the convexity of this region, and one perineal strap is needed.

This dressing for the treatment of artificial anus is worn with comfort and with a sense of security on the part of the individual. It does not leak material or odor, and interferes little with the ordinary mode of dress. My first patient wore one nearly two years. They may be easily constructed from this description by any manufacturer and supplied at moderate cost.

The Action of Adrenalin on the Cerebral Vessels.

—A new method of studying the action of adrenalin on the blood-vessels has been devised by CARL J. WIGGERS (*Am. Jour. of Physiol.*, Nov. 1, 1905). By perfusing the isolated brain under constant temperature and pressure with a suitable solution, and continuously recording the entire venous outflow, the effect of influences which alter the size of the brain vessels can be definitely ascertained. The application of an adrenalin solution to such a preparation and in such a way as not to introduce factors themselves conducive to outflow change, cause reactions which correspond to those obtained from the vessels of other regions.

have one in good order after nearly nine years, but for the last three years it has been used only occasionally to centrifuge blood. Although equally good results can be obtained with the hand instrument, thorough centrifugalization means considerable fatigue and it is difficult to

fully. Before abandoning the hand centrifuge, I made a thorough comparison between it and the water-power instrument and found that the results are practically identical, provided that one adopt the rule of centrifuging to a constant minimum bulk.

TABLE I.

The following comparisons of results are submitted: Examinations for chlorides, modified Volhard method, using standard decinormal solutions as compared with Purdy method.

NAME AND DATE.	MODIFIED VOLHARD METHOD.		PURDY METHOD.	
	C. C. N/10 AgNO ₃ for 10 c. c. Urine	NaCl	Bulk, AgCl	NaCl
	Per cent.	Per cent.	Per cent.	Per cent.
H. M., June 20	16	0.936	6	0.78
" June 23	8	0.468	5	0.65
J. N. P., June 29	4	0.234	2.5	0.32
" July 11	0	0	1	0.13
" July 12	trace		1.75	0.23
" July 14	0	0	2	0.26
R. V. H., July 15	18.8	1.0998	6.5	0.84
J. N. P., July 21	8.2	0.4797	3.25	0.42
F. S. W., July 22	11.4	0.6669	2	0.26
R. B., July 28	10.8	0.6318	2.25	0.29
C. L. L., July 31	19.8	1.1583	6.5	0.84
" August 1	12.8	0.7488	5.5	0.71
" August 2	4.4	0.2574	3.5	0.45
" August 3	10.6	0.6201	4	0.52
" August 4	13.4	0.7839	4.75	0.62
" August 5	11.8	0.6903	4	0.52
" August 6	10.8	0.6318	4	0.52

attend to the scientific part of the work and do one's own turning. While I used the hand centrifuge, I depended almost altogether upon an assistant for it, and my impression is that not counting the expense of service, the additional

Centrifugal analysis is perfectly correct in theory, the implication being that a given substance, in a fine state of subdivision, free from elasticity, and subjected to a considerable degree of pressure, contains an approximately con-

TABLE 2.

Examination for sulphates, titration with BaCl₂ solution, using same and K₂SO₄ solution as indicators, as compared with Purdy method.

NAME AND DATE	TITRATION METHOD		PURDY METHOD.	
	C C N110 BaCl ₂ for 100 c. c. Urine.	SO ₃	Bulk, BaSO ₄	SO ₃
	Per cent.	Per cent.	Per cent.	Per cent.
H. M., June 23	54	0.49	2.5	0.61
J. N. P., June 29	36	0.33	2	0.49
" July 11	18	0.17	1.5	0.37
" July 12	17	0.16	1	0.25
" July 14	24	0.22	1.5	0.37
R. V. H., July 15	11	0.10	1	0.25
J. N. P., July 21	29	0.27	1.5	0.37
F. S. W., July 22	9	0.08	0.75	0.19
R. B., July 28	14	0.13	1	0.25
C. L. L., July 31	30	0.28	1.75	0.43
" August 1	19	0.18	2	0.49
" August 2	20	0.19	1.5	0.37
" August 3	18	0.17	1.5	0.37
" August 4	16	0.17	1.25	0.31
" August 5	16	0.15	1	0.25
" August 6	15	0.14	1	0.25

breakage incident to its use in conjunction with an assistant, renders it the most expensive form of apparatus. However, where neither water nor electric power is available, the physician is usually obliged to keep a man who can easily be taught to turn the centrifuge steadily and care-

stant weight in a definite volume. The substances measured in urinary analysis, are, respectively, silver chloride, barium sulphate, uranyl phosphate and an organic compound of silver with uric acid. Albumin and other proteids, occurring in urine or stomach contents, may also be estimated by the

centrifuge, but these substances are not dense but bulky, they are somewhat elastic and they are precipitated in comparatively large masses, so that the lower portion in the centrifuge tube is much more compressed than the upper portion and the readings are, hence, only approximate, a fact well recognized by the writer in elaborating his centrifugal method of proteolysis in chyme. The uric acid compound with silver, is less dense and more elastic than the inorganic salts already mentioned.

Whether the centrifugal method of urinary analysis is really correct in practice, is a moot point. The late lamented Dr. Purdy, of Chicago, who elaborated it, considered it as of sufficient accuracy for clinical purposes. On the other hand, most chemists hold the centrifugal method in contempt. But, without going into details of the usual chemical methods of analyz-

chlorides, the ratio being about 10:9 or 10:8. This may be accounted for in either of two ways. The tables compiled by Dr. Purdy for computing actual percentages of chlorides from bulk percentages, are based on a certain time for centrifuging. The writer, on the contrary, always centrifuged for a longer time and until the minimum bulk was reached, that is to say, until the moist precipitate failed to reach a lower level after three or five minutes' further centrifugalizing. On the other hand, in titrating, the writer was, perhaps, too careful not to overrun the sulphocyanide reaction, and therefore subtracted 1—2 tenths of a c.c. too little from the amount of N/10 AgNO₃ solution added, thus exaggerating the amount used for calculating NaCl by 2—4 tenths of a c.c. and the final reading by about 0.02 per cent. In the tests made on F.S.W.'s urine, there was an error in the titra-

TABLE 3.

Examination for phosphates, titration hot, with N/10 Uranyl nitrate solution, using potassium ferrocyanide as an indicator, compared with Purdy method.

NAME AND DATE.	TITRATION METHOD.		PURDY METHOD.	
	C. C. N ₁₀ UO(NO ₃) ₂ for 50 c. c. Urine.	P ₂ O ₅	Bulk, Uranyl Phosphate.	P ₂ O ₅
	Per cent.	Per cent.	Per cent.	Per cent.
O. D.'s case, May 29	27	0.28	8	0.11
J. D. M., May 30	25	0.26	8	0.11
A. L. B., June 1	8	0.08	4.5	0.075
T. MacK., June 1	8	0.08	7	0.1
H. M., June 20	18	0.19	10	0.13
" June 23	12	0.12	11	0.14
J. N. P., June 29	14	0.15	6	0.09
" July 11	23	0.24	9	0.12
" July 12	20	0.21	9.5	0.125
" July 14	24	0.25	9.5	0.125
R. V. H., July 15	14	0.15	6.5	0.095
J. N. P., July 22	22	0.23	11.5	0.145
F. S. W., July 22	10	0.10	5	0.08
R. B., July 28	9	0.09	5.5	0.085
C. L. L., July 31	33	0.34	10	0.13
" August 1	13	0.14	6.5	0.095
" August 2	13	0.14	7	0.1
" August 3	11	0.11	7	0.1
" August 4	13	0.14	7	0.1
" August 5	13	0.14	6.75	0.095
" August 6	11	0.11	6.25	0.092

ing urine, it may be said that all of them involve possibilities of error, which are greatly multiplied when very small quantities of investigandum are used and especially when, as in the case of chlorids and uric acid, chances of error occur in two or more steps of the investigation. In the case of centrifugal examinations, on the other hand, the chances of error are limited to one step. By ordinary laboratory methods, the end point is not exact in any case and the personal equation enters into the estimation to a considerable degree. This is especially true of estimations of chlorides and uric acid. (Table 1.) While the titrations are stated for 10 c.c. of urine, in all cases except first, 5 c.c. were used. In the first six tests, the urine was ashed, in the mainder it was not. It will be noted that in the majority of the contrasted tests, that by the centrifugal method gives a less proportion of

tion which was not corrected, on account of the throwing away of the urine before the next visit to the laboratory. This urine was highly albuminous on account of chronic nephritis and the chlorides were probably considerably diminished by filtration after boiling. The case of R. B. was diabetes, which may possibly interfere with the estimation. In the three examinations of J.N.P.'s urine (cancer of pylorus with almost absolute closure, rectal alimentation, including about 6 grams of salt a day) the titrations showed an entire absence of chlorides excepting once, a trace. It seems more probable that some were present, as indicated by the centrifuge tests. On the whole, considering the fact that clinical deductions do not rest upon minute differences in the amount of chlorides, the conclusion seems warranted that the centrifugal method is exact enough for practical purposes. (Table 2.)

It is noted that the Purdy estimates, in all cases, overran the others to a considerable degree. The obvious conclusions are, first that the centrifuge tubes should be so constructed as to read in at most eighths of a c.c. at the bottom and preferably in tenths. Mine, indeed, are so constructed and are quite accurate but, not real-

a wide discrepancy, though in the opposite direction to what might be anticipated and one of the samples from C.C.L., on account of the discrepancies for chlorides, sulphates and uric acid, suggests that confusion of specimens might have been made or that accidental dilution occurred at the laboratory. (Table 3.)

TABLE 4.

Examination for uric acid by Hopkins method as compared with centrifugal method of R. Harvey Cook.

NAME AND DATE.	HOPKINS' METHOD.		COOK'S METHOD.		
	C. C. of N/20 KMnO ₄	C. C. of Filtrate.	Uric ac., m.g. per 100 c.c.	Bulk percentage of silver precipitate.	Uric Acid. m.g. per 100 c.c.
	Per cent.				
R. B., May 17	6.9	60	29.875	2	23.52
" May 17	6.6	70	29.41		
O. D.'s case, May 29.	21.4	60	84.25		
" May 29.	15.7	60	Gross error on ac. filter paper.	6	70.56
J. D. M., May 30.	12.1	50	48.708	5	58.80
" May 30.	10.6	85	45.416		
M. W., June 16.	4.3	42	18.925		
" June 16.	5.7	30	23.375	2	23.52
H. M., June 20.	32.2	70	125.41	9.5	111.72
" June 20.	35.4	50	136.08		
" June 23.	30.6	25	119.15		
" June 23.	29.5	25	112.285	11	94.08
J. N. P., June 29.	5.3	25	19.875	3	35.28
" June 29.	3.2	25	13.66		
(Gross error in laboratory, sediment not properly shaken. First examination by short method, washing ppt. of ammonium urate and taking up in H ₂ SO ₄ .)					
J. N. P., July 11.	8 (overrun.)	22	31.5	2	23.52
" July 11.	6.9	23	27.375		
" July 12.	13.5	28	52.485		
" July 12.	13.7	25	53.041		
NOTE.—The discrepancy here is not so great as appears. It was learned after the laboratory examination that, instead of two 24-hour samples, there was an unequal division of the urine of forty-eight hours. Only one centrifugal examination was made, and estimating the uric acid for the entire period, by the two methods, it was 27.98 by the Hopkins method, 23.52 by the Cook method, in each 100 c.c. Allowing for slight decomposition before the latter method was carried out, the discrepancy is still less.)					
J. N. P., July 14.	(Error exaggerating reading.)	36	41.374	2	23.52
R. V. H., July 15.	12.6	36	49.65	4.5	52.92
(Error diminishing reading.)					
J. N. P., July 22.	24.1	66	94.708	8	94.08
" July 22.	16.5	84	67.475		
(Second test vitiated by spilling.)					
F. S. W., July 22.	2.9	50	12.875	6.5	76.74
" July 22.	Second test spoiled.				
(First centrifugal test on urine directly, second after boiling out albumin.)					
G., June 14.			11.	0.25	2.95
G., June 20.			19.	1.5	17.64
(The two estimations for G., by the Hopkins method, were made by a competent chemist. The first centrifugal test is mentioned merely as a matter of interest, as the urine had stood two days and was decomposed, and, moreover, the sediment was not included.)					
C. L. L., July 31.	3.8	27.5	15.73	8.5	99.95
" July 31.	3.	24.	12.85		
" August 1.	3.4	40.	15.41		
" August 1.	3.5	20	11.458	5	58.80
" August 2.	4.	28	16.86	7	82.32
" August 2.	3.9	30	15.725		
" August 3.	4.	65	12.133		
" August 3.	3.6	75	18.5	6	70.56
" August 4.	3.2	39	14.6	4.5	52.92
" August 4.	3.1	43	14.155		
" August 5.	2.1	28	9.605		
" August 5.	2.6	30	11.75	5.5	64.68
" August 6.	2.5	34	11.635	4	47.04
" August 6.	2.3	33	10.825		

izing the misleading results until too late, and following Purdy's table, I set down the results in the nearest quarters. I am convinced that if I had read in tenths of a c.c. and calculated each tenth c.c. as representing 0.02 per cent. SO₃, the correspondence would have been accurate enough for practical purposes. The albuminous urine of F.S.W., in this case also, shows

Excepting in two cases the Purdy estimates were less than those by titration and the discrepancy was especially great when the titration required over 20 c.c. of the reagent. There is reason to believe, however, that, the first two titrations were grossly exaggerated, on account of a defect in the reagent. If we exclude these two tests, and that of June 23, when the water

pressure was abnormally low on account of trouble with the supply pipe for the house, and when all bulk percentages seem to have been correspondingly loosely packed, there are only two tests in which a fair comparison would not have arisen from counting each bulk percentage as 0.02 of P_2O_5 . Bulk percentages of 10 or more should be viewed with suspicion. (Table 4.)

Excluding cases in which gross errors had been made, the above cases show a fairly close correspondence between the two methods, the centrifugal method usually giving lower results. Indeed, if we consider such bulk percentage as corresponding to 12 m.g. per 100 c.c., still better results will be obtained. In two cases, however, those of F.S.W. and C.L.L., we find a very marked contrast between the two methods. The former case was the one of chronic nephritis but the albumin did not explain the discrepancy, for the result was nearly the same, with and without removing albumin. The latter case was one of esophageal stricture—probably cancerous—and was on a light diet, consisting mainly of milk and prepared cereals. After the first day, the diet consisted entirely of milk, plantose, sugar and salt. In these cases in which the results of the two methods were so divergent, there seemed to be no possibility of gross error in manipulation. It is, of course, possible that the centrifuge method is altogether fallacious so that it may at times coincide closely with the Hopkins method and, at other times, be greatly in excess or in deficiency, without any regularity. A more plausible explanation is that the silver sludge consists of various purins in combination with silver and hence that the Cook method is really an estimation of total purins as uric acid, and not of uric acid alone.

If the centrifugal method is really a fairly accurate analysis of total purins, it is, for most uric acid alone, although, in certain instances, the acid as contrasted with the basic elimination of purins, may have a special significance. The Hopkins method is not only tedious but peculiarly liable to accidental errors and, in many cases, cellulose from filter paper increases the reading, is also more or less arbitrary, varies somewhat according to the personal equation and, I am told, even a competent chemist has to keep in practice in order to get closely corresponding results in two or more portions of the same urine. Very large errors are inevitable with this method, unless one is specially trained in it.

The following conclusions are offered:

1. In the centrifugal analysis considerable centrifugal force should be employed, to insure even and dense packing of precipitates. A speed of at least 2,000 revolutions per minute is necessary. In the hand centrifuge, the speed can be determined by multiplying the revolutions of the crank by an arbitrary factor, which can be easily determined by inspection of gearing or simply by counting the revolutions of the centrifuge while

the crank is turned very slowly. Water-power and electric centrifuges can be rated by the musical note, by comparison with a tuning fork.

2. The only safe rule in centrifugalizing is to continue the process until a constant minimum is reached.

3. The inaccuracies of the centrifugal method depend to a considerable degree upon inaccurate graduation of tubes.

4. Fairly accurate estimates of chlorides may be made by counting each percentage in bulk precipitate as 0.02 per cent. of NaCl.

5. Fairly accurate sulphates may be made by counting earth percentage of bulk precipitate as 0.02 per cent. of SO_3 .

6. Fairly accurate phosphates may be made by counting each percentage of bulk precipitate as equivalent to 0.02 of P_2O_5 . If the precipitate reaches 10 per cent. or over, the reading should be controlled with a diluted specimen.

7. The uric acid determination by centrifuge is much less liable to experimental blunders than the Hopkins and allied chemical methods but is either subject to fallacies of unknown cause, or it includes with uric acid, other substances, probably basic purins. Each percentage of silver sludge corresponds, according to Dr. Cook, to 11.76 m.g. of uric acid per 100 c.c.

8. All centrifugal tests are liable to vary widely from the corresponding chemical tests in individual cases. Whether the centrifugal method is subject to improvement so as to eliminate these occasional great errors or not has not been determined.

ON THE USE OF EGG ALBUMIN IN THE TECHNIC OF STAINING THE CAPSULES OF BACTERIA.¹

BY ALBERT A. EPSTEIN, M.D.,
OF NEW YORK.

IN view of the importance recently given to the study of the morphology of capsules in the differentiation of encapsulated bacteria,² a more general use of the methods devised for staining such organisms is not only desirable, but necessary.

The need of serum³ in the preparation of the specimens for the preservation of the capsules, constitutes a drawback to the use of certain capsule stains where no special measures are taken to obtain serum. A substitute which is always within reach is, therefore, very desirable.

From a consideration of the chemical composition of serum, and by experimentation, I have been able to determine that three elements are conducive to the preservation of the morphology of the capsules; these are: the presence of an albuminous substance, a certain amount of salt and an alkaline reaction. A menstruum can be made up from the white of egg, which in every

¹ From the Pathological Laboratory of the Mount Sinai Hospital, New York. Presented at the November meeting of the New York Pathological Society.

² Buerger: *Zentralblatt für Bakteriologie*, Bd. XXXIX, p. 337.

³ Hiss: *Ibid.*, Bd. XXXI, p. 302.

respect is as serviceable as serum in preparing specimens for capsule staining.

The dilution of egg albumin which gives the best results, as determined by experiment on different organisms, is that of equal volumes of white of egg and distilled water. This is best obtained by adding to the white of one egg an equal amount of distilled water, shaking the mixture thoroughly and, preferably, filtering through cotton. This solution can be used safely for two or three weeks (or more) without any danger of deterioration.

Greater definition of the outer portion of the capsules may be obtained by the use of normal saline solution in place of distilled water. When neither distilled water nor normal saline is at hand, ordinary tap-water may be used. The additional alkalinity given by the tap-water to the white of egg solution, serves to intensify the stain in general, but does not in any way interfere with the form of the capsule.

The organisms on which the tests have so far been made are: the *Streptococcus mucosus capsulatus*; the pneumococcus, and the *Bacillus mucosus capsulatus*. The staining was done by the Buerger method,¹ and in every instance a serum control was made. The results with egg albumin not only were satisfactory, but in many instances excelled those given by the serum controls. In no instance did egg albumin fail to give a capsule when one had been obtained with serum, nor were any capsules obtained with it when serum failed to give one.

Tests were also made of the application of egg albumin to the Hiss temporary and permanent methods of staining capsules. The results obtained with egg albumin and with serum controls were precisely the same. Further work in this direction is still being carried on, the results of which will appear in a future publication.

MEDICAL PROGRESS.

SURGERY.

Ununited Fractures.—C. W. SHARPLES (*Journal A. M. A.*, Oct. 28) thinks that local conditions probably have more to do with ununited fractures than do constitutional states, but just what these local conditions may be it is difficult to say. He does not think that interposed tendon or muscular fiber can play much part. In compound fractures, the greater damage to the periosteum would be likely to cause delayed union, and hemorrhage, by delaying the process of granulation essential to callus formation, would also have its effect. A colleague, Dr. Yocum, of Tacoma, has called his attention to the better results he had obtained in ununited fractures by the use of drainage, and he suggests that drainage may act as the seton did in the hands of earlier pre-antiseptic surgeons, who reported strikingly good results with it in these cases. Other causes of non-union are said to be tight bandaging and the too early use of the limb. Interference with nerve supply is also likely to cause delayed union, and pregnancy, lactation and syphilis have also been mentioned as causal factors. Medical treatment can only be useful in toning up the

deteriorated general condition, though some claims have been made for thyroid treatment in these cases. Of course, in case of specific infection treatment for that condition is advisable. Next to medicinal treatment in simplicity is putting the limb up in a strong plaster cast and allowing the patient to use it to a certain extent from time to time. He has seen good results from this treatment, and believes that, before any operative measures are undertaken, it should be tried for a period of at least three months, in the hope of obtaining some irritative reaction that will cause bony union. Failing in this, some operative treatment is demanded. Sharples thinks an open incision should be avoided, if possible, until after other means have failed, but if necessary almost any method can be used that will bring healthy bone tissues into apposition. To obtain perfect fixation, he suggests the possibility of making a shoulder in the overlapping ends of the bones as is done in joining heavy timbers, and then pegging or wiring the parts together. The results seem to be about the same whether the simplest or the most complicated method is employed. Not all patients will recover, no matter what care and attention they receive.

Local Anesthesia in the Radical Cure of Inguinal Hernia.—JOHN A. BODINE communicates a personal experience of 300 radical operations for the cure of inguinal hernia under local anesthesia (*Med. Rec.*, Oct. 21, 1905). The patients number 284; 16 were double ruptures; 275 males, 9 females. The youngest was 15, the oldest 80. Ten were strangulated. Omentum was amputated twelve times; the appendix found and excised three times; undescended testicle one time, castration. Hospital detention was two weeks, with one week additional away from work. The amount of cocaine in no case exceeded $\frac{1}{2}$ grain. No wound suppurated, and there was no mortality. Anatomically the inguinal region is peculiarly adapted for the induction of local anesthesia. No sizable blood-vessel nor nerve trunk is encountered in the skin or subcutaneous fascia. Beneath the aponeurosis of the external oblique lie the nerves which preside over the sensation of the part, the inguinal branch of the ilioinguinal, the hypogastric branch of the iliohypogastric and genital branch of the genitocrural, named in the order of their sensitiveness. Though variable in size and position, the identification of these nerves is not difficult, and their anesthetization secured. Undoubtedly this method insures greater safety to the patient, since the mortality of the operation, as at present practised, is practically the mortality of the anesthetic. None will gainsay the statement that intermittent injections of a solution of cocaine throughout the period of an hour, amounting in all to $\frac{1}{2}$ grain, are well within the limits of absolute safety. Under local anesthesia the operation can be performed with the same thoroughness as under general anesthesia, and with practically no more limitation in regard to plan of technic adopted, whatever the size or condition of the hernia. The solution is made by dissolving one grain of cocaine in one ounce of sterile salt solution, a strength practically one-fifth of one per cent. This stock solution is used for skin infiltration and cocaineizing the nerve trunks. For all subdermic infiltration a solution half this strength is used. The line of skin incision is infiltrated throughout its extent with sufficient tightness to hold the local anemia for an hour or more. It is important to properly place the needle point. When it lies true, it can be seen from the surface. If the layer of subcutaneous fat is thick,

¹ Buerger, *MEDICAL NEWS*, 1904, XXXVIII, 1117.

Matas' massive infiltration is necessary before the skin is incised. Fat cannot be edematized after the skin incision. A solution of 1 to 10,000 cocaine may be used for the purpose. The skin incision should stop at the suprapubic fold. Downward traction will give abundant space for operative work, and the venous plexus in the mons veneris is avoided. The aponeurosis of the external oblique requires no anesthesia. After division of this over the site of the internal ring, the ilioinguinal nerve is sought and cocaineized before carrying the incision into the external ring. The iliohypogastric should be searched for, and if found cocaineized. If not found, the margins of the internal ring and adjacent conjoined muscle are infiltrated with one-tenth of one per cent. cocaine solution. Along the central line of the long axis of the protrusion a line of infiltration with the same solution is made. The sac is now opened and the contents dealt with as needed.

PATHOLOGY AND BACTERIOLOGY.

The Cause of Syphilis.—Now that so much is being written about the *Spirochata pallida* as the cause of syphilis, it is interesting to note that the parasite described by Siegel (*Cytorrhycles luis*) has also been found in every case of syphilis examined by R. FREUND (*Munch. med. Woch.*, Sept. 19, 1905). There can be no question that the blood of syphilitic patients contains flagellated parasites, and these are often so numerous that two to six may be counted in every field of the microscope. As soon as the patients received antisyphilitic treatment, the parasites became less numerous and after a course of inunctions could no longer be found in the blood. In healthy individuals or those suffering from other diseases, similar structures could never be detected. If rabbits are inoculated with syphilitic blood, the parasites will proliferate and may be found in very large numbers after twenty days. At the same time, the animals will appear sick, and their blood, if injected into monkeys, will give rise to undoubted syphilis. Staining is unsatisfactory, and the best results are obtained if the fresh blood is examined.

Pathology of Bradycardia.—JOHN HAY reports a case of bradycardia and discusses its pathology (*Brit. Med. Jour.*, Oct. 21, 1905). The important features of the case in question were: (1) Marked bradycardia, the pulse frequently ranging from 17 to 30 per minute. (2) Transient loss of consciousness, associated with cessation of the pulse at the wrist. (3) Auricular contractions occurring twice or thrice as frequently as the ventricular, the cause of the bradycardia being "heart block." (4) An enormous heart, the autopsy revealing no cause for the hypertrophy and dilatation. Two other marked changes were found in the heart; viz., stretching of the auricular canal and attenuation of the bond between the bases of the tricuspid valves and base of the ventricle. These two lesions interfered with the auricular contraction reaching the ventricles and thus produced the "heart block." Since there was no lesion present to account for the great hypertrophy and dilatation, it seems that the most likely explanation would be as follows: During each ventricular diastole the auricles contract two or three times, resulting in overdistention of the ventricles, which consequently dealt with an excessive amount of blood during their systole. The strain on the ventricular walls due to the forcible pumping in of blood by the auricles would produce dilatation, and the large volume of blood dealt with would necessitate

hypertrophy. It is assumed that the attacks of dizziness and fainting were due to a temporary cessation of ventricular contraction.

Studies on Ducrey's Bacillus.—As a result of a large number of examinations, J. YAMAGUCHI (*Sei-I-Kwai Med. Jour.*, Sept. 30, 1905) states authoritatively that the bacillus first described by Ducrey may be quite regularly found in the secretion from soft chancres. It exists both in the pus from the surface and in that of the bubo originating from it and may be detected both within the pus cells and outside of them. Isolated bacilli and groups are common, but the existence in form of chains is rather rare. It may be stained by the common aniline dyes and is discolored by Gram's method, but the ordinary media are not suited for further growth. Agar with blood, or broth with defibrinated blood, generally gives good results, and the bacilli usually preserve their shape well on these media. It is often difficult to identify the bacillus from a mere smear since a good deal of contamination may be present; in such instances a culture may be desirable, since the fully developed bacillus often presents filamentous forms. The culture media to be employed also permit of a proliferation of gonococci, hence may also aid in this direction.

Thymus in Congenital Hypotonia.—In a typical case of congenital hypotonia, observed by A. J. SMITH (*Univ. of Pa. Med. Bull.*, Oct., 1905), the autopsy showed a well-marked fibrosis of the thymus gland with enlargement of the corpuscles of Hassal and endothelial proliferation. Other changes were endothelial proliferation in the Malpighian bodies of the spleen, arteriosclerosis in the thymus and spleen, the presence of lymphnodes in the lung and proliferation of the lymphoid elements in the mesenteric glands. It is impossible to say from one case if these changes are in any way characteristic for the disease, particularly since the true function of the thymus gland is as yet unknown. The following theory is suggested: Myotonia is essentially a condition of autointoxication, and it is quite conceivable that some material is formed through faulty metabolism, which has a stimulating influence upon the vascular and lymphatic endothelium and the proper lymphoid cells of the thymus.

Ricin and Abrin Experiments.—GEORGE A. WATSON publishes some experiments in ricin and abrin immunity (*Brit. Med. Jour.*, Oct. 28, 1905) which were undertaken with the following objects in view: (1) To estimate the amount of transmitted immunity through one and both parents. (2) To estimate the amount of immunity obtained through the maternal blood alone and the maternal milk alone. Owing to the low birth-rate and high mortality of the progeny, only (4) positive results regarding transmitted immunity through the parents were obtained. The results of breeding experiments showed that the effect of immunization is to diminish the power of producing offsprings in both sexes, although apparently not interfering with the sexual appetite. When offsprings are produced, these, especially in the inoculated females, are often puny, and are either born dead or do not long survive birth. The generative organs do not show changes to account for the above. Experiments to show that immunity was conferred through the male alone resulted apparently in the negative, whereas the single experiment which it was possible to complete relative to the transmission of immunity through both parents tended to show that this was gained by the offspring to a considerable extent, though most likely this was acquired through the maternal blood and milk. It was also shown that immuniza-

tion of a mother guinea-pig suckling her young resulted in the transmission of this immunity to the offspring.

EYE, EAR, NOSE AND THROAT.

The Non-Toxic Amblyopias.—T. W. MOORE, *Journal A. M. A.*, Aug. 26) classes the non-toxic amblyopias under three heads: (1) Those cases of amblyopia exanopsia held to be due to inability to use corresponding areas of the retina at the same time. This may be due to high refractive errors, to improper muscle balance or to non-development of the cerebral fusion center. (2) The hysterical amblyopias. (3) The somewhat similar but different group characterized by impaired vision, contracted fields for white and normal color fields, the color vision being proportionate to the general visual acuity; these cases are usually designated as anesthesia of the retina. Lastly, there is the subgroup of these latter due to traumatism, often with pathologic changes of the fundus from old hemorrhage or choroidal rupture that has left the parts uninvolved in a healthy condition, though vision has not yet returned. These cases are closely allied to the preceding group, differing only in etiology and in the limited results of treatment. Amblyopia exanopsia is usually easy of diagnosis, the defective vision apparently normal fundus, frequent squint of one eye, and the high refractive error making it clear from the first. Moore finds the convex-glass cure of Frommüller the most satisfactory treatment and reproduces the directions in full. In some of his cases he has had surprisingly good results, and some improvement in all in which he could command the cooperation of the patient. With the hysterical amblyopias the diagnosis is also, as a rule, not difficult. The concentric and constant narrowing of the visual field with reversal for colors is characteristic. Other conditions may show the contraction, but not with the color reversal. In addition, there are the other signs of hysteria, both ocular and otherwise, to aid in the diagnosis. The treatment consists in general measures to build up the patient's health, correction of the hysterical tendency and of any errors of refraction, etc. As regards the cases grouped by him in his third class and which fall etiologically under two heads, those due to traumatism and those of unknown causation. Moore disagrees with Charcot and Leber as to these being hysterical, and holds that the trouble is really in the retina instead of in the brain. An illustrative case is reported. His treatment in these cases is electricity, and he finds the faradic and high-frequency currents equally as efficient as the galvanic, and the high-frequency current perhaps the most useful. He applies the electrode over the closed lids, usually using the unipolar, though the bipolar is equally useful; in applying the latter his method is to let the patient hold the other electrode in his hand. With the reflex amblyopias from irritation of the fifth nerve he has no experience.

Influence of Nasal Obstruction on the Form of the Face.—There exists much difference of opinion as to the relation in cause and effect between a highly arched, narrow palate and nasal obstruction when these conditions are found associated. W. B. PARSONS (*Lancet*, Sept. 30, 1905) states that given a bilateral anterior nasal obstruction, complete or of partial degree, buccal respiration being unimpeded, with negative pressure in the nasal fossæ behind the obstruction as would occur at each inspiration, negative pressure is present to the same degree in all those fossæ of the skull connected

with the nose and pharynx above the soft palate. The long-continued effect of the consequential external atmospheric pressure upon young and soft bones would be to deform them in a definite direction, namely, in the direction of a narrowing of the face and upper jaw and dolichocephaly. This configuration of the jaw was shown by the measurements of Fraenkel to occur no more frequently in those who have adenoids than in those who have not had them. It is not sufficiently understood that there is, and must be, a difference in the result produced when the obstruction is situated anteriorly and when it is situated in the naso-pharynx. For mechanical reasons their effect must differ. An anterior obstruction at each inspiration is productive of negative air pressure within the nasal chambers and a corresponding increase of pressure on the outside of the face, whereas a posterior obstruction cannot exert any influence to diminish the air pressure in the nasal, maxillary, and associated sinuses. On the contrary, this pressure, in common with the general air pressure outside the naso-pharynx, and if buccal respiration be also impeded, must become excessive and its effect would be to depress the bridge of the nose and to widen it, which is the most noticeable feature observed in very young children suffering from obstructing adenoids. At each inspiration a positive air pressure is brought to bear upon the outside of the face as well as the chest and the whole face is flattened in an antero-posterior direction. The brunt of pressure falls upon the growth itself and upon so much of the ethmoid bone as lies above the obstruction. This being driven backward will lead to flattening of the bridge of the nose. When anterior obstruction exists concomitantly with posterior, the effects would be expected to vary in the ratio of the degree of one to the other, the anterior first exerting its influence and only so much of the posterior coming into play as is in excess of the former. If the characteristic deformity of the upper jaw indicative of anterior nasal obstruction be recognized in a patient presenting adenoids, it should suggest treatment of the anterior as well as removal of the post-nasal growths. On the other hand, when the typical adenoid facies alone exist, in which deformity of the upper jaw has no part, operative interference may be expected to return immediate beneficial results.

Indication for Operating in Mastoiditis.—In an interesting article, P. D. KERRISON (*Med. Rec.*, Oct. 28, 1905) states that immediate operation should be advised in ear trouble if there is a sudden or considerable rise of temperature with cessation of aural discharge and persistence of other symptoms and if there is deep-seated mastoid pain and marked sensitiveness to pressure over an area extending well beyond the limits of the antrum. In the absence of fever, the above symptoms must yield rapidly to abortive treatment. Marked tenderness over the antrum, persisting four to five days after free incision of Shrapnell's membrane would point to necrotic changes within the antrum. One of the most positive indications is a marked variation in the amount of pus voided, particularly if the periods of diminution are coincident with the development of mastoid pain. Mastoid tenderness having been present and disappeared, a discharge from the tympanic vault which resists all non-operative measures may justify the hypothesis of a necrotic area in the aditus or the antrum. In such cases an operation is often the only means of saving the integrity of the organ. Last of all, the development at any time of symptoms of septic absorption after mastoid involvement has been present, would form an indication of immediate operation.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor.
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in registered letters.

LEA BROTHERS & CO.,

No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, DECEMBER 16, 1905.

MEDICAL UNION AT LAST.

ON Saturday, December 9, Supreme Court Justice Davy, of the seventh judicial department of the State of New York, sitting at Rochester, N. Y., signed the order which consolidates the two medical organizations that for the last twenty years have divided the allegiance of the members of the regular medical profession in this State. There is no doubt that this judicial decision is welcome to every member of the profession in this State. The vote for consolidation at the meeting of the New York State Medical Association failed of unanimity by two dissenting ballots, but it is well known that even these two were not so much opposed to union as to certain principles they thought might be sacrificed as the result of the absorption of the Association by the Medical Society of New York State. This union comes just in time for a glorious celebration of the One Hundredth Anniversary of the foundation of the Medical Society of the State, which takes place at the beginning of February. It is to be hoped that the celebration will serve as an appropriate occasion to obliterate any remnants of personal feeling that may possibly remain among older members of the former organizations. Now we can look forward confidently to the single united medical

society in New York State having the influence and the weight which the medical profession of the Empire State has always exerted but which has unfortunately been shorn of its completeness during the last quarter of a century. We heartily congratulate both the State medical organizations and wish them an endless career of usefulness for the benefit of the medical profession of the State and of the country and also for the citizens of the great commonwealth of New York, who will doubtless soon feel how much is being accomplished for their protection from many existing medical evils by the untrammelled activity of a united medical profession.

A NEW ANESTHETIC AND ANTISPASMODIC.

IT was Prof. J. Traube who a short time ago stated that the ideal narcotic or anesthetic has not yet been found, for all the known substances that lull the activity of the nervous tissues at the same time injure them by entering into firm chemical combination with their protoplasm. The test of any new narcotic substance would therefore be the degree to which it thus enters into harmful combination with the nerve cells. It is this marked deficiency of every one of the long list of pain-destroying drugs that stimulates a keen interest in the announcement of any newly discovered narcotic.

For some months past Dr. S. J. Meltzer, of New York City, has investigated a property possessed by magnesium salts and discovered by him six years ago, namely, that of inhibiting the functional activity of nervous tissue. In December, 1899, he announced before the American Physiological Society that the intracerebral injection of magnesium sulphate in the rabbit causes speedy paralysis without antecedent convulsions. In conjunction with Dr. John Auer (*Am. Jour. of Physiol.*, Oct. 2, 1905), he has recently studied the effects on the lower animals of subcutaneous injections of small doses of a 25 per cent. solution of magnesium sulphate. He discovered that these produce in a short time a profound anesthesia lasting from one to over two hours. During this time it is possible to perform various operations. A dose greater than 1.75 grams per kilo weight of the rabbit results fatally. It is the magnesium ion that possesses this anesthetic property, for similar results were obtained with magnesium chloride and bromide. There was noted one marked difference between the magnesium salts and other anesthetics,

namely, the narcotic stage in the former is not preceded by a period of excitation. This is also true of the fatal paralysis that follows the use of large doses.

These investigators subsequently studied the effect of the application of solutions of magnesium salts directly to the nerve trunks. Their results, reported to the Society for Experimental Biology and Medicine, Oct. 18, 1905 (MEDICAL NEWS, Dec. 9, 1905), indicate that here, likewise, a marked inhibitory effect is obtained. In the case of the sciatic, pneumogastric, depressor, and sympathetic nerves of rabbits, the power of conducting motor and sensory impulses is completely inhibited or blocked. The conductivity returns after a shorter or longer time, in the former case particularly after washing the nerve with Ringer's solution.

It is assumed, in explanation of this remarkable effect, that magnesium, which is normally present in the tissues, constantly exercises an inhibitory power over them. This function is fully as important to the organism as the factors that make for excitation. If this supposition is correct, then the therapeutic application of the magnesium salts as anesthetics would be a mere extension or exaggeration of their physiological function. Barring any unfavorable accompanying effects, the magnesium salts would thus approach the character of an ideal anesthetic.

The brilliant researches of Dr. Meltzer did not stop at this point. In a paper read before the New York Academy of Medicine, Dec. 7, 1905, he announced his success in producing anesthesia by means of intraspinal injection of magnesium sulphate. The experiments were carried out upon dogs, cats, rabbits and monkeys. Lumbar puncture was performed, and 1 c.c. of a 25 per cent. solution of magnesium sulphate to every 25 pounds of body-weight was injected into the subarachnoid space, after an equal quantity of cerebrospinal fluid had been removed. This was followed immediately by complete anesthesia of the lower extremities. The practical possibilities that are bound up in this discovery readily suggest themselves.

Indeed, Prof. Joseph A. Blake has already made practical use of this novel method of controlling motor hyperactivity. The opportunity presented itself in a case of severe acute tetanus in a child admitted to Roosevelt Hospital. Tetanus antitoxin was injected into the cervical cord on two successive days; with apparently no

effect, for on the following day the temperature rose. Then, after lumbar puncture, subdural injections of magnesium sulphate were resorted to. The dose used was 1 c.c. of the 25 per cent. solution to every 25 pounds of body-weight, and this was administered every 36 hours, four doses being thus employed. The effect was a marked and immediate control of the convulsions and opisthotonos, but it was not permanent, necessitating the repetition of the injection. Following this treatment, for a number of days chloral and morphine were administered, and then another injection of magnesium sulphate was made. Then the patient gradually improved, the temperature fell to normal and in a few days the patient was up and well. There was little doubt that the subdural injections of magnesium sulphate played an important part in the cure of this case, which, in its severity, presented all the characteristics of the usually fatal cases, under simple antitoxin treatment.

While further observations are needed to establish the magnesium salts in therapeutics, the vista opened looking toward the goal of control of numerous motor disorders is attractive.

THE HOUSE HYGIENIC.

It has long been the boast of our rather stolid British cousin that his house is his castle, but if this march of sanitary improvement, in regard to dwellings, continues, it will soon be in the power of every American citizen to say that his home is his hospital. For a germ-proof house is the latest addition to the hygienic terrors of life, and a retired and eccentric business man of the name of Crackenthorpe is to be its possessor and future tenant.

What Mr. Crackenthorpe's full name may be, and what manner of a house he has previously occupied, we do not know. We suspect, however, that a full description of both facts could be found by a diligent search in the records of the prematurely discharged patients of some of our larger State hospitals, but his plans and specifications are sufficient evidence, as they are given out, to render any such investigation superfluous. The establishment, as a whole, is no doubt thoroughly scientific, but it is also as thoroughly uncomfortable—a prison without stone walls, and a cage, even if destitute of iron bars. Bleak, bare and by no means "a handsome house to lodge a friend."

For this house is not to be founded on a rock,

but to be builded on the sands. On gravel soil, destitute of cellars, with concrete and blocks of earthenware "pierced for ventilation," placed under the floors and the ordinary bricks in the foundations, will "be superseded by glazed and tightly fitting hygienic bricks." It is to be single-storied, and without stairs, and the walls, which are massive, are broken by windows that extend from floor to ceiling. The partitions, too, that divide this remarkable house against itself are as thick and heavy as the outer walls, and the whole interior knows neither laths nor plaster, for the walls are to be covered with a cement that admits of an extremely high polish that can be stained of a dark gray, which can be washed frequently, without injury.

"The white-washed wall, the nicely sanded floor, even the varnished clock that ticked behind the kitchen door," are relegated to the past. Then we have hardwood, parquet floors, and in no room will there be corners to harbor dust or bacteria, for even the skirting will curve into the planking, instead of striking it at right angles. Hence there will be no necessity for the dear little old ladies of Cranford to place the newspapers athwart the course of the noonday sun, for carpets, curtains and draperies will be tabooed, and even the pictures, when allowed, are to be let into the cemented wall. There is, to be sure, a conservatory, but Heaven save the mark! For here also has this blight of cleanliness, that is not only next to, but above godliness, fallen, and the artistic eye and the useless nose are to be gladdened by "plants of the India rubber and eucalyptus type."

As to the plumbing, even the specifications are beyond the ken of mortal man, save that he has been bound apprentice to a plumber after a full university education. For there are pipes within pipes—wheels within wheels, and buttons to press, and levers to pull. There are valves for the overflow of mental understanding, traps for the feet of wandering intellect, but death for comprehension. Everywhere there is bewildering white porcelain and glittering nickel plate, with pipes that run up, and pipes that run down, and never a transverse joint, until the inquiring mind, after the perusal of some hundred pages, is dazzled and frightened with the mental condition of the gifted child who described the Deity as "something very grand in the shape of an oblong blur."

It is, however, in the furniture of this remark-

able architectural confection that the individuality of the owner becomes most apparent, for, after all, it is the environment of a man, the tone of his daily habitat, that is more indicative of his character than even his companions. We do not know whether Mr. Crackenthorpe has feathers, nor do we imagine that he is really vile, but we are morally certain that it will be impossible for him to find anyone to flock with him, particularly in a nest so devoid of every pleasing prospect, for there are no divans or silken cushions, no ancient easy-chairs or modern cozy corners, and the soft, lascivious pleadings of the lute would echo like thunder crashes from those reverberating walls. The house may be "germ-proof," but it is also immune to Cupid and his darts, for that poor wretched little boy would have to rest his shivering limbs on mahogany chairs devoid of padded comfort, or extend them stiffly on cushions of medicated wool.

There would be no crumpled roseleaf to disturb his rest, no faded violet to recall the bow-lipped mouth and dazzling teeth, or with its soft perfume, to kill the taint of the carbolic-laden atmosphere; no broken toys, nor baby clothes; no whining schoolboy with his satchel, to decipher the chemical formula of his breakfast food. Poor Cupid! No open fire with its cheerful blaze, to take the place of those dull, perforated hot-air pipes. No massive chimney, in the brown-tiled roof, down which Santa Claus could drive his reindeer steeds, or open flue, from which the Christmas air could break in the craigs of those cold gray walls tingeing the painted maxim of Lydia Pinkham with the color of romance.

How many years Mr. Crackenthorpe will occupy this house, we cannot say, but even a long life would not contain sufficient hours for the birth of his successor, for history repeats itself from Francis Quarles:

"This house is to be let, for life or years;
Her rent is sorrow, and her income tears;
Cupid has long stood void;
Her bills make known
She must be dearly let, or let alone."

HOPE FOR THE FUTURE.

THE American Tuberculosis Exhibition, which has just closed at the American Museum of Natural History, marks an event of large import in the history of preventive medicine in the United States. That congenial pair, Superstition and Ignorance, which have appeared in high places

in every stage of man's development, are still complacently occupying a comfortable social position in our enlightened city in the company of the devotees of Christian Science, Osteopathy, Quacks, and Patent Medicines.

Of what avail is it that men should give their lives in a steady line of progressive research for centuries, when the very people for whom they have achieved the power to help turn from them with the narrow faith born of egotism, and trust their deadly disease to a man who not only has not the faintest idea of its nature, but decries the scientific treatment that belies his own.

It is not only "the other half," the dwellers of the slum and tenement, that need to be shown how to live. It is this half as well. We have seen the friend of our bosom choose confidently the treatment of a nostrum vender who promised to cure him of tuberculosis by city treatment of fortified inhalations when the Adirondacks were available; we have seen a society woman enthusiastically work up a clientele for the man who was treating the cancer of her breast with massage and embrocations. Death came with swift step, but brought no conviction of failure to the ignorant converts left behind.

In matters appertaining to health the public seems to feel the same competence of judgment that it does in religion. Medicine, like theology, is a vast subject wherein anyone may wander in paths of their own preference, and with the same gregarious instincts. Thus we find the great thoroughfare, medicine, that has seen the brilliant onward march of science, through cytology, embryology, bacteriology, absolutely unknown to them. They are content to believe that the bypath in which their chattering friends are convened is the only highway along which to flee from sickness and death.

Therefore we say that this exhibit, put forth by the National Association for the Study and Prevention of Tuberculosis and the Committee on Prevention of Tuberculosis of the Charity Organization Society of New York, is one great event of our times, for it marks the beginning of the systematic bridging of the chasm that lies between the scientific world and the ignorant and superstitious public.

It is only the beginning. There should be in the Natural History Museum of New York, or in a board of health building of every city, a public exhibit, where, by means of models, photographs, charts and diagrams, the public may be

made familiar with the essential features of the mode of prevention of contagious diseases. It should be a part of the education of every boy and girl and of every teacher to know as an indisputable fact some of the vital statistics of disease.

The questions raised by such knowledge cannot be settled by preference, and one's judgment on vital questions, such as the need of fresh air in tuberculosis and the imperative obligation of continence in the case of syphilis, is not to be influenced by temperament, faith or individual leanings. There are certain things in medicine that must be laid down absolutely and dinned into the public, whether they are homeopaths, osteopaths or Christian Scientists. These names are no more to medicine than the names of Shaker and Mormon are to religion. The public must know. The public shall know. And nothing will bring knowledge so thoroughly as the pushing of just such work as has been done at this exhibit into every town of the United States.

ECHOES AND NEWS.

NEW YORK.

Public Lecture.—Under the auspices of the New York Academy of Medicine a public lecture will be given by Health Commissioner H. F. Darlington, M.D., on the results of the work of the Commissions on Pneumonia and on Meningitis on Friday, December 29, 1905, at 8.30 P.M., at the New York Academy of Medicine, 17 West Forty-third Street. The medical profession and the public are invited.

New Medical Society.—A new medical society has been formed, known as The West Side Clinical Society of New York. Its meetings are held on the first Friday of each month, except July, August and September, at the residences of members. Officers are Charles Ross Jackson, M.D., President, 220 West One Hundred and Seventh Street; Charles Alfred Haffner, M.D., Secretary, 201 West One Hundred and Fifth Street; Augustine C. McGuire, M.D., Treasurer, 207 West One Hundred and Fifth Street.

National Association for the Study of Epilepsy.—At the fifth annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, held in New York City, November 29, 1905, the following officers were elected for the ensuing year: President, Dr. Max Mailhouse, of New Haven, Conn.; First Vice-President, Dr. Everett Flood, of Palmer, Mass.; Second Vice-President, Dr. William F. Drewry, of Petersburg, Va.; Secretary and Treasurer, Dr. James W. Wherry, of Dansville, N. Y.

Consolidation of Medical Societies.—At a special term of the Supreme Court held in Rochester, N. Y., on December 9, 1905. Justice J. M. Davy signed an order consolidating the Medical Society of New York and the New York State Medical As-

sociation. This union of the societies is now an accomplished fact. The president is Dr. Joseph D. Bryant. It becomes effective from the present time, and the one hundredth anniversary of the Medical Society of the State of New York, which is to be celebrated in January, 1906, will see a membership of 6,000 members. The complete organization will be effected at that time.

PHILADELPHIA.

Obstetrical Society of Philadelphia.—The regular meeting of this society was held December 7, 1905. Dr. Robert L. Dickinson, of the Long Island Hospital, delivered, by invitation, a lecture on "The Uterus and Ovaries of Neurasthenia." The discussion was opened by Dr. F. X. Dercum and continued by Drs. B. C. Hirst, Charles K. Mills, J. M. Baldy, Wm. G. Spiller, John G. Clark, C. P. Noble and Wm. E. Ashton.

Medical Book Club Anniversary.—The West Philadelphia Medical Book Club held its thirty-fifth anniversary last week at 111 South Fortieth Street. After the preliminary meeting the members were entertained at a banquet where speeches were made by Dr. J. Y. Sinclair, president of the club; by Dr. W. S. Forbes, Dr. J. H. Lloyd, Dr. J. S. McConnell and Dr. A. E. Blackburn. Dr. John H. Musser, in the club's behalf, presented Dr. Samuel S. Stryker with a loving cup.

The Philadelphia Academy of Surgery.—At the regular meeting of this society, which was held on December 4, 1905, Dr. De Forest Willard showed "A Case of Urinary Infiltration; Sepsis; Temperature 108.2° F.; Recovery After Perineal Section." Dr. Edward Martin showed "The Operative Results In An Old Fracture of the Patella, with X-ray Pictures of the Same;" also "A Case of Extensive Angioma of the Face." Dr. John Roberts reported "A Case of Aseptic Foreign Body in the Cranial Cavity Causing Epileptiform Convulsions. Dr. William J. Taylor read a paper on "The Effects of the X-rays on Glandular Tissue." Dr. J. Chalmers Da Costa read a report on "Eight Cases of Typhoid Perforations."

Measles Epidemic.—Since the outbreak of measles three weeks ago the malady has spread rapidly; the dissemination of the disease is held by the health officials to be due to negligence on the part of the parents in not calling in a physician to see that the affected children are properly isolated. The disease is most abundant in West Philadelphia and in the northeastern section of the city. In these localities 37 school-houses have been disinfected and in addition the Bureau of Health thinks it advisable to disinfect the homes of many of the children. Last week 201 cases were reported to the Bureau of Health. During the same week 152 new cases of typhoid fever were reported, a decided increase over the number of cases reported the preceding week.

American Society of Tropical Medicine.—A stated meeting was held December 8, 1905, at which Col. William C. Gorgas, Assistant Surgeon-General of the United States Army and sanitary inspector at the Isthmus of Panama, delivered the address of the evening. He pointed out that yellow fever was more difficult to conquer on the Isthmus than in Cuba because in the last-named place there are two months in the year in which the mosquito does not breed. He spoke of the re-equipping of the hospital with modern safeguards to prevent the spread

of the malady. He noted that not a single case became infected in the hospital; on the other hand, while under French directions, as high as three physicians died in one day. Each ward is disinfected every two weeks with sulphur; all the cisterns and water barrels are protected with screens. All cases are not compelled to go to the hospital, but may be treated at home; good results follow this plan. Dr. Abraham Jacobi, of New York City, discussed the remarks. The discussion was continued by Dr. W. W. Keen, Dr. J. C. Wilson and Dr. Ramon Guiteras.

CHICAGO.

Appointment of Dr. Graham.—Dr. Samuel A. Graham was recently reappointed chief of the staff of physicians at the Illinois Eastern Hospital for the Insane, Kankakee.

Investigation of Water Supply.—The secretary of the State Board of Health of Illinois, Edward Bardow, director of the State Water Supply, and J. A. Harmon, sanitary engineer, held a conference November 21 at which plans were adopted for the systematic investigation of the water supply of the State, which will include the sewage purification system in operation in twenty cities of the State.

State of Chicago's Health.—According to the weekly bulletin of the Chicago Health Department there were reported for the week ended December 2, 483 deaths, equivalent to an annual mortality of 12.65 per 1,000. The deaths were 12 more than for the previous week, and 33 more than for the corresponding week of 1904. Consumption caused 67 deaths; pneumonia, 62; heart diseases and nephritis, each, 40; intestinal diseases, 31; violence, including suicide, 25; cancer, 23, and nervous diseases, 22.

Dual Blow at Tuberculosis.—The grand jury of Chicago in its report says: "We wish to emphasize the serious menace to the health of the community in the spread of consumption by the cheap lodging houses in the downtown districts. Statistics regarding this are appalling." The above quotation is from the report of the November grand jury, in which they called attention to the menace afforded by the cheap lodging houses, one of which, according to Dr. V. H. Podstata, has alone furnished one per cent. of the patients to the consumptive hospital in Dunning. Dr. George W. Webster, President of the State Board of Health, in a lecture before a lay audience at the Chicago Public Library recently, advocated legislation that would compel the notification of the city health authorities in all tuberculous cases. By prompt reports, he declared, the deaths could be reduced 40 per cent., which would mean 32,000 lives saved annually in Illinois. Every new lease for a flat or a house should have pinned to it a clean bill of health, he said, and the public schools should be made an important center in the campaign against the disease. Rented homes, if there is suspicion of infection, should be disinfected. The public school buildings should be constructed with a view to proper sanitation, and the curriculum should not be so crowded that pupils are overworked. The pupils should be given proper information regarding the spread of disease and the means of its prevention. Consumptive teachers should be barred, and the consumptive pupils should not be allowed to enroll. In some cases sanitary lunches might be provided by the educational authorities, for ill-fed bodies fall a prey to disease. It is of little use to drill the pupils in the movements of the

days before. He was ninety-two years old and had practised for sixty-four years. He was born in Germany, came to America with his parents in 1839, and received his medical education at the old Medical College of Pennsylvania.

Prof. GEORGE W. MILTENBERGER, probably the oldest and most widely known physician of Maryland, died of old age at his home in Baltimore on December 11 in his eighty-seventh year. He was graduated from the University of Maryland in 1840, and some time later held the professorship of obstetrics there for thirty-two years. On his retirement in 1890 he was made Professor Emeritus and Honorary President of the Faculty. He was consulting physician to the Johns Hopkins and the Baltimore Eye, Ear and Throat Charity hospitals.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, December 2.

DEATH OF A FAMOUS PROFESSOR—AMALGAMATION OF MEDICAL SOCIETIES—PROGRESS IN TROPICAL MEDICINE.

By the death of Sir John Burdon-Sanderson, which took place at Oxford on November 23, the British medical profession loses one of its most conspicuous figures. He was seventy-seven years of age, and took his degree at Edinburgh in 1851. He was a grand-nephew of Lord Eldon, the autocratic chancellor, who, in the words of Sidney Smith, weighed heavily on mankind in the early years of the nineteenth century. He was one of the pioneers of experimental research in this country, and one of the first who taught physiology as a science. The circumstances of his professional career supplied him with an all-round training which prevented his degenerating into the narrow specialism of the mere physiologist. The fact that he had been a practising physician made him regard physiology as the scientific basis of medicine, and set his face strongly against the divorce between them, which is being brought about here on the teaching of physiology being entrusted to men who are not members of the medical profession at all, or who are so only in name. Sanderson began by teaching botany at St. Mary's Hospital, London; afterwards he lectured on medical jurisprudence. He was for years a medical officer of health in a London district, and worked in the Medical Department of the Privy Council under the late Sir John Simon. He was also a physician to the Brompton Hospital for Consumption and to the Middlesex Hospital. In these days of specialization such pluralism of teaching, research and clinical work is unthinkable; yet the very variety of function which his official position forced him to undertake went to the making of a teacher who in the catholicity of his scientific interests, and the breadth of his mental outlook, had no peer among modern physiologists. His practical experience as a physician, though short, was sufficient to give him a sympathy with human suffering which is not bred in laboratories, and his considerable period of service as a public health officer gave him a grasp of the problems of disease prevention which is often wanting in the pure pathologist. The researches made by him for the Privy Council threw much light on the nature of cholera, tuberculosis, cattle plague and infectious disease generally. In 1875 he succeeded Sharpey in the chair of physiology in University College, London, and his appointment marks the dawn of a new era in the teaching of that science in this country. His lec-

tures were, indeed, above the heads of the average students, but it was in the laboratory that he really taught. In 1882 he was elected Waynflete Professor of Physiology in the University of Oxford. All the forces which at that time made Oxford, in the words of Matthew Arnold, the home of lost causes were banded against his appointment. The gentlest and most sympathetic of men, he was denounced as a torturer of animals because he was the part author of a handbook for the training of students in the "horrors" of the laboratory. Sanderson took no part in the fight which was carried on with the aid of every discreditable device that petty malice could inspire, but the friends of progress finally won the day. At Oxford Sanderson's chief strength, his stimulating and fertilizing influence over the minds of young workers, had full play. His nobility of character, striking presence and magnetic personality reinforced the splendor of his intellectual gifts, and he soon became a power in the university. His shyness, while it hid his merits from the outside world was in itself a distinction in an age of self-advertisement, while his absence of mind gave a touch of oddity which without lessening his greatness rendered it less oppressive to ordinary humanity and made the man himself peculiarly lovable. Innumerable are the stories of the absent-mindedness of "The Burder," as he was affectionately called at Oxford. A good many are doubtless apocryphal, but when the "higher criticism" has done the legendary element a solid substratum of truth remains. I know at first hand that he asked an eminent London physician who was acting as examiner at Oxford to luncheon, and then took leave of him at his own door on the plea that he expected a guest that day. When the physician hinted that possibly he was the expected guest the "Burder," with a seraphic smile, admitted that it might be the case. On another occasion he had a distinguished stranger staying in his house. Leaving the Museum, he happened to meet his guest strolling toward the parks. He greeted him with the greatest cordiality and invited him to accompany him towards his house. Arrived at the gate, Sanderson turned round and shook hands, saying "It has been the greatest pleasure to me to meet you, and I wish I could ask you to spend a few days with us. But the house is full, as we have some people staying with us." He has been seen trying to smoke a stick of chalk and looking resentfully at it from time to time because it would not draw. Of his doings at table and of his strange meals in laboratories weird legends are current. He has been seen at his own dinner table to carve the joint and serve his guests, afterward attacking his own empty plate, oblivious of the fact that he had forgotten to help himself. The late Sir Henry Acland used to tell a delightful story of the Professor's absent-mindedness. While a guest at his house, Sanderson one day asked Miss Acland if he might have his luncheon earlier than usual, as he wished to have a walk before returning to the schools. At the appointed hour lunch was duly served and the Professor left the house. Ten minutes later, at his usual luncheon hour, he returned, rang the bell and asked the astonished servant to bring up lunch. It was duly served, and Miss Acland had the satisfaction of seeing her guest make a second hearty meal, having evidently forgotten his previous meal. One evening Lady Sanderson left him to conduct his guests into the dining-room. When she came down into the hall she found him helping them into their overcoats, shaking hands and saying good-night. A former worker in his laboratory at University College relates that he once left Sanderson lost in contemplation at a table

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Consumers in the United States have been aware of the potential for pharmaceutical companies to abuse their market power for many years. The Federal Trade Commission (FTC) has been active in enforcing the antitrust laws against such behavior, and by the Federal Bureau of Investigation (FBI) has been active in enforcing the antitrust laws against such behavior. The FTC has been active in enforcing the antitrust laws against such behavior, and by the FBI has been active in enforcing the antitrust laws against such behavior.

cial point of view impracticable. A meeting of the "Med. Chi," as it is familiarly known, was held in November to consider the question, and after some discussion a resolution was passed directing the council to take the steps necessary for the amalgamation of the Royal Medical and Chirurgical Society with the Medical, the Clinical, the Obstetrical and Gynecological, the Pathological, and with the following special societies: The Neurological, the Epidemiological, the Medico-Psychological, the Ophthalmological, the Laryngological, the Laryngologico-Otologico-Rhinological, the Otological, the Dermatological, the Dermatologico-Venerological, the Society for the Study of the Diseases of Children, the Association of Medical Officers of Insurance Companies, the Bacteriological, the Society of Anaesthetists, the Electro-Therapeutic, the Therapeutical, and the Odontological. Each of these will be a section of the new society, having complete autonomy as far as its own special affairs are concerned. The management of the new society is to be vested in the hands of a general council, consisting of the president, the presidents of sections, two treasurers, two librarians, two secretaries and eight other members to be elected by the fellows. It is thought that the

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people who need to be educated: First, members of the medical profession who are destined to work in the tropics. Second, all white men going abroad, whether officials or missionaries, and in particular teachers of children. In the third place, and perhaps this is the most important, the native children in the elementary schools of the tropics need to be taught the connection of mosquitoes and their congeners with disease. By reaching the young people there will gradually grow up a generation that will recognize the proper means for the prevention of disease." Speaking of the work of the London School of Tropical Medicine, Manson said there is now a great demand for the training which is given there. Thirty-nine students have entered for the present term, and 550 have passed through the school since its foundation. The Colonial Office insists on all their medical officials having a three months' course of tropical medicine, defraying the necessary expenses, but a large proportion of the students are unofficial, many of them being medical missionaries, whilst there is much greater demand for properly trained men for service in connection with public companies in the tropics. Besides the School of Tropical Medicine in Liverpool, there are now centers for tropical research and teaching on the Continent. In Paris and Hamburg there are excellent schools of tropical medicine, whilst one is shortly to be started in Naples. As regards America, Manson said the question is being mooted of the establishment of a school in San Francisco, where almost unequaled opportunities can be obtained for studying tropical diseases clinically. The Americans had been most energetic in research and also in practical measures, and they had special laboratories in Manila. In many other parts of the tropics there are also good research laboratories, such, for instance, as the Wellcome Laboratory in Khartoum, besides those which have been established at various centers in India, the Colonies and Protectorates. Manson went on to say that he would have all government employees in the tropics, from the Governor to the humblest mechanic, aware of and believers in the part played by insects in the causation of tropical diseases. Government employees are expensive. The Government has a right to protect itself from loss. In the British West African Colonies the official gets twice the salary he would get for doing half the amount of work he would be called upon to do in a healthy climate, and over and above this he gets six months' leave of absence for every twelve months' service, besides many other expensive privileges; hence the cost of administration of these colonies, relatively to their revenues and value, is enormous. Naturally this cost has a retarding effect on the development of the Colonies. What is spent on administration cannot be spent on roads, railways and other remunerative public works. The unhealthiness of these colonies is the cause of all this. Anyone, therefore, who, by carelessness or ignorance in regard to the conveyance of tropical disease germs by insects allows himself to become infected, is a very serious loss to the government of the colony. Such a man is a bad investment. He should never have been employed. Means should be devised to keep such men out of government service or other public appointment. Asked his views as to tropical bowel complaints, Manson said: "There are certainly many more invalidated home from these diseases than from any other cause, and they give rise to much more serious trouble. In very few cases have we any real knowledge of their cause, and the various methods of treatment are mainly empirical and guided or dictated by experience only. This is undoubtedly one of the most important points

to which research could be devoted in the future. Many Europeans suffer from filariasis, but the subject requires much closer investigation than it has yet received, and in particular the exact connection of filaria with elephantiasis needs to be demonstrated. As regards anchylostomiasis, Europeans are probably affected much more commonly than is generally supposed, and the diagnosis of this condition should be remembered in cases of anemia returning from the tropics." In reply to a question about sleeping sickness, Manson said: "Two Europeans have recently returned from Africa, one from Uganda and the other from the Congo, with trypanosomes in their blood and suffering from symptoms which are known to be due to this parasite, so that the possible infection by trypanosomes is a point of practical importance to be recognized by Europeans going to regions where these parasites are prevalent. It is a very serious matter for the European on the Congo and Uganda, where the tsetse fly should be regarded with as much respect as the mosquito." He added that important advance in tropical medicine is the recognition of the fact that chronic fevers with enlarged spleen are not necessarily or even usually of malarial origin, but may be caused by infection either with trypanosomes or the Leishman body. The general recognition of the anchylostomes as a cause of tropical anemia and the employment of the microscope in its diagnosis are, from the standpoint of the native, enormous advances only very recently achieved through the attention that has recently been directed to tropical medicine. The conquest of yellow fever is perhaps the most complete if not the greatest triumph that tropical pathology has to record.

GOITER IN INDIA.

To the Editor of MEDICAL NEWS.

DEAR SIR: It is with interest I have read articles in the MEDICAL NEWS on goiters. This is a subject every medical man practising in the tropics must be more or less interested in, as it is perhaps more frequent here than in the U. S. A.

It might interest your readers to a certain extent to know something regarding the Hill tribes among whom I am specially working.

The writer of this article is laboring among several wild tribes in the Chin Hills, northwest of Burma, southeast of Assam, south of Manipur, north of the Arrakan Mountains, and northeast of an unadministered tract of land, which will ere long most probably be taken by the English, as an expedition is now being sent out in that direction. The people are called Chins, a savage race, very much degraded, in fact, as low down on the plain of human life as any race I ever heard of. I doubt that any people can be found more degraded and bestial than are the wild Chins. This may not interest your readers greatly, however, and therefore I shall mention briefly my experience with goiters among them.

Goiters are very common, and during the two years I have been stationed here, have had opportunities to see and treat several hundred of them, large and small. In some parts of the Hills, more than one-half of the inhabitants are affected, and it often happens that a company of 25 to 50 people from one village come for treatment. They all want "chok-por si," their name for goiter medicine.

When I first arrived from the states I was much perplexed as to what to do for them. I had studied the treatments as practised in the U. S. A., such as

operations, the injection of carbolic acid and glycerin, and internal treatment extending over years of time, and, lastly, X-ray treatment, none of which could by any manner or means be applied to a savage people such as these, where one must by force of circumstances give heroic doses at the first call, as it often happens we do not get a second call in one and the same illness, as they suppose the one dose will cure them. The writer felt, as so many others have felt and feel, that he must do something, but what to do was the question. I had carried with me no suggestions from the medical profession at home that could be applied here, nor did I receive any suggestion on the way out to my field of work. I was familiar with the internal treatment of iodine, but it could not in the same way be practised here. In my stress of mind I undertook to treat goiters with external application of iodine and camphor, adding the gum camphor to a strong solution of tincture of iodine, in fact to a saturated solution of tincture of iodine. This preparation I now applied to every patient for the treatment of goiters, and with a marvelous result. The cure was heralded through the Hills, and people came, as mentioned above, in large numbers to be relieved. To my knowledge at least 300 cases have been treated, and as many as have returned for additional applications, three and four times, have had the pleasure of seeing their goiters disappear.

The question will no doubt be asked, Is it a permanent cure? I guarantee no positive cure, but tell the patients that if they continue coming they have a good chance of getting well. After a few treatments I have seen goiters of enormous size absolutely disappear, and there has so far been no sign of a recurrence, and yet they may return. But after one and a half year there is no sign of it.

It is to be understood that I am unable to follow up a great many cases, but many come again, thus giving me the opportunity of studying them and follow up results.

The strong solution has this against it, that it is apt to cause erosion of the cuticle. The tincture of iodine, as per the U. S. Pharmacopœia, is strong enough for ordinary cases and would perhaps be better tolerated by patients at home. The Chins are not of tender skin, as they usually wear nothing else than a loin cloth as covering, and so I use the stronger solution. The application causes more or less pain for a while, but it cannot be as painful as a surgical operation.

Yours truly,

H. EAST, M.D.

American Baptist Mission,
Haka, Chin Hills, Burma, October 18, 1905.

SOCIETY PROCEEDINGS.

JOHNS HOPKINS HOSPITAL HISTORICAL CLUB.

Meeting, held October 16, 1905.

John Howard's Observations on Hospitals 1773-1790.—By Dr. Henry M. Hurd.—Charitable impulses were not at all active during the eighteenth century. In many of the prisons and reformatories of Europe the inmates were subjected to torture; many criminals were sent to America. In Connecticut, prisoners were confined underground to save the expense of building penitentiaries. In many of the States, prisoners were hired out. England at this time inflicted capital punishment for one hundred and sixty crimes.

John Howard, for seventeen years high sheriff in Bedfordshire, began his work in behalf of prisoners in

1773. He traveled extensively through England and the continent, studying prisons, infirmaries and reformatories. He found the most depressing conditions. In many places insufficient food was allowed, and in one place, mentioned in his notes, the inmates were given only two pennyworth of food per diem. Prisoners were farmed out, and in a number of bridewells in England were left entirely to charity. He often found no accommodations for sleeping and at times no windows, to escape the window tax, leaving the prisoners without fresh air. He tells graphically how upon leaving one of these prisons he rode on horseback to rid himself of the vile odor which saturated his clothing. Everywhere disease and filth were prevalent. Jail fever raged and killed more per year than the gallows. The records of his investigations were recorded in two volumes which ran through many editions; the first volume, "The State of Prisons in England and Wales," was published in 1777, and the second, "An Account of Prisons and Lazarettos in Europe, with Various Papers Relative to the Plague," in 1789.

Howard's attention was attracted to the reform by the conditions existing in the prisons and reformatories at that time. He believed in baths, milk, wine, fresh air and nursing. He recommended caution for infection, that infected clothing should be exposed to heat in an oven or buried, and that convalescents be given special care and attention before they were sent back to the prison fare. In notes made in visits to pest houses and infirmaries he said, the inmates were kept too warm, often being quartered in recesses in the walls. In Amsterdam he found rooms of the officials neat and clean, but the patients were crowded in small dirty quarters. The children were dirty and covered with scorbuts, few of them ever reaching manhood and these being feeble and sickly. In St. Lazarus Hospital, at Warsaw, sixty-one venereal patients were crowded into close offensive rooms. In Madrid conditions were somewhat different. There were separate rooms for consumptives. The whole surroundings were that to be sources of infection, and if a patient died his horse was immediately killed to prevent the spreading of the disease. Of hospitals in London he said, the fees excluded many of the poor. The visits of the governors were only matters of form, and everywhere there was neglect on the part of the surgeons and nurses. Walls were practically never white-washed, and the patients received no baths, either hot or cold, on account of the trouble to the attendants. Conditions were deplorable. In one hospital he found two patients lying in bath-tubs for want of other beds.

In a summary of his ideas, he said the situations of infirmaries or hospitals should be on elevated ground near a stream and out of town. There should be only two floors. The wards should be fifteen feet high, and with two doors to each ward, one for surgical and the other for medical patients. There should not be more than eight beds to each room. The ceilings should be lathed and plastered and fireplaces should be in the long ends of each ward. The beds should be of iron, painted and with screens at the head for raising and lowering. There should be hair-mattresses. The vaults should be on the outside of the wards and the closets as at Guy's. There should be one spare ward, and that changed frequently by moving the patients around. The wards should be washed once a week. The patients should be washed on admission and kept clean. Everywhere he considered fresh air, good food and cleanliness essential. In order to carry out his ideas in regard to reforms in prison bridewells, jails and hospitals, Howard traveled through Europe to collect money for this purpose. It is interesting to note that

in order to study the plague at first hand he boarded an infected ship at Malta and was held in quarantine there for forty days. There have been a number of biographies of John Howard, among which the two most interesting are "The Life and Memoirs of the Public and Private Life of John Howard," by John Brown, 1818, and "The Life of John Howard," by Hepworth Dickson, 1869.

The History of Typhoid Fever.—By Dr. Thomas McCrae.—The lesson is the difficulty of the recognition of diseases. The difference is between typhoid and typhus fevers. To one who has seen a few typical cases of typhus, the difficulty is recognizable. Both in Liverpool and in London patients with typhoid have been sent into typhus wards. There have been fevers associated with delirium since antiquity, but we cannot recognize typhoid in Hippocrates. It may be that it is the disease described at that time as hemi-tertian. Spigelius described cases which admit of doubtful recognition. The case described by Sydenham is probably the first authentic case. He was one of the first early accurate observers in English clinical medicine. Hoffman, in the epidemic in Halle, apparently separated the disease from typhus. To the end of the seventeenth century typhus, typhoid, plague and malarial fevers were all grouped together. In the eighteenth century both Struthers in England and Gilchrist in Scotland described a disease with ulcers in the bowel and an enlarged spleen which was probably typhoid.

It is doubtful if in England in the middle of the eighteenth century there was a definite distinction between typhoid and typhus, though there had been quite definite ideas as to their difference earlier. Morgagni described a case in detail. Malarial fever had been separated earlier. Great advances were made in the study of the disease, particularly the pathology, in the latter part of the eighteenth and early part of the nineteenth century. Huxham had noticed the difference between the putrid malignant and the slow nervous fever. In 1829, Louis studied a fever to which he gave the name typhoid, but it is doubtful if he had it clearly differentiated from typhus. In 1830, the prevailing fever in France was typhoid, while both typhoid and typhus prevailed in England; hence there was much confusion in regard to the two diseases, and the cases with intestinal lesions were thought to be only a group of the cases. Louis had working with him in Paris some American students, one of whom, Gerhard, came to Philadelphia and after working in typhoid there for a while published a report on the disease in the *American Journal of the Medical Sciences*, Vol. 15, 1835. Though he recognized the essential features of typhoid we cannot be sure that he recognized clearly the differences between the two diseases until the typhus epidemic in Philadelphia in 1836. He then met the two diseases face to face, with a clear knowledge of the one and a daily increasing knowledge of the other. He set forth clearly the difference in his report of the epidemic in the *American Journal of the Medical Sciences*, Vol. 38, 1837. Alfred Stillé studied typhus under Gerhard in Philadelphia and, later, typhoid under Louis in Paris. In 1838 he read a paper in Paris upon the differences of the two diseases, which was published in the *University of Pennsylvania Medical Bulletin* for 1904. George Cheyne Shattuck, of Boston, studying under Louis and afterward in London, recognized the difference. In 1838-9 James Jackson, Sr., and Enoch Hale published papers in Boston upon typhoid. Nathan Smith had published a paper in 1824, in which, though he had not recognized the disease, he gave a very clear description of it. In 1842, Elisha Bartlett published a

paper in which the two diseases were discussed separately with admirable clearness. Other names associated with publications were Bright, Stewart and Jenner. In 1839, Schönlein proposed the name "typhus abdominalis." Murchison, in England, later suggested as a name "pathogenic fever."

With the recognition of the disease came conjecture as to its origin. The French alleged that it was carried in the air. Murchison suggested fecal matter, particularly after putrefaction. Budd (*Lancet*, 1856-1860) believed the agent was in the stools, that infection always arose from a definite source and that an infective focus was necessary before a community could be infected. He thought that infection could be prevented if the excreta was properly disinfected. The idea of putrefaction held for a long time, during which Bull and Pettenkofer published their groundwater theory, basing their conclusions on the conditions in Munich. In 1880, Eberth discovered the *Bacillus typhosus*. Since then we have had the discovery of the agglutinin reaction and the works of Gaffky, Grünbaum, Widal, Durham and other well-known investigators.

In discussion, Dr. William Welch said that it was impossible to distinguish the two diseases until post mortem came to be made in the sixteenth and seventeenth centuries. From the literature of this time one finds a number of descriptions of lesions which were undoubtedly typhoid, though no one clearly established the distinction until the nineteenth century. Nathan Smith's remarkable and classic description in a monograph on typhus fever gives in simple words the symptoms of typhoid not approached up to his time, and hardly surpassed since. The French writers of the early nineteenth century, particularly Broussais, thought that all fevers were symptomatic. They considered two types: one due to arteritis and phlebitis, and the other to intestinal lesions. It was thought necessary to treat the second type by venesection. They recognized the disease as being primary of the stomach and intestine and the fever as secondary. No name holds so prominent a place in establishing the distinction between the two diseases as that of Gerhard. His conclusions were reached by seeing the two diseases separately. In Dublin, Graves and Stokes held out so long because they saw the two together.

In the discussion, Dr. W. G. MacCallum said that we should appreciate Budd on account of his accurate description. He was also one of the first to describe amebic dysentery. Carl Ernst Emil Hoffman's work on the pathological anatomy of typhoid covered over two hundred autopsies, and his descriptions of the lesions agree very well with the writers of to-day.

Famous Artists and Anatomists.—By Dr. T. B. Fletcher.—Andreas Vesalius was born at Brussels, 1514. At fourteen he began to study anatomy. He studied at the University of Montpellier and later at Paris until the popular antipathy against the dissection of the human body became so great that he found it necessary to go to Italy. In 1536 he was at Venice. From there he went to Padua where he remained seven years, studying and giving public demonstrations. From Padua he went to Bologna and later to Pisa. He was Flemish by birth, but Italian by adoption. He is the first author of a human anatomy, his book being published in Basel in 1543, to which place he went especially to see it in press. He had begun at twenty-five to arrange material for his book from his dissections, but it was not out of press until his twenty-ninth year. The best-educated classes were not ready for human anatomy at this time. It is said that the relatives of a prominent personage upon whom he had done a dissection had him con-

demned to be tried by the Inquisition, but he was let off by promising to go to the holy land. In 1564 he was invited to return to Padua. On the return journey the ship upon which he was sailing was wrecked in the Ionian Sea and he was lost. Vesalius was not only a student, but he was a teacher of anatomy. That he recognized the advantage of good illustrations we know, for his *Fabrica* has many drawings by leading artists. Titian has been given credit for some of them, but it is doubtful if any of them are his work. Leonardo De Vinci is thought to have made many of the drawings, because they were made by a left-handed man. These drawings have the shadings on the left, instead of on the right side as usual, and Leonardo was a left-handed man. But he died when Vesalius was but five years old. Vesalius gives Von Calcar, a pupil of Titian's, credit for some of the drawings. Many think that most of the drawings which shade to the left were stolen from Leonardo who had made many drawings of anatomical subjects.

Leonardo De Vinci was the son of a Florentine lawyer and was born out of wedlock. He lived with his father until he was twenty-four years old. At fifteen he was placed in school. Later he spent many years at Milan and made the cupola for the cathedral there. He worked very slowly and carefully. It took him ten years to paint "Christ's Last Supper" on the refractory wall at Santa Maria Theresa. He was an undefatigable worker, trying to master all the arts and sciences. It is said of him that "never before in the human race has the same passionate desire for knowledge been combined with such an eye for beauty." He was learned in anatomy, botany, chemistry, astronomy, geology, mathematics and physics, when these sciences were new. He tried to master too much. In art he carried few of his undertakings to completion. He made anatomical descriptions and dissections, and demonstrated the laws of vision. He dissected for ten years at Padua. He wrote mirror writings, and his sketches show the shading on the left side. There are thirteen volumes of his sketches, twelve in the library at Milan, and the thirteenth in the royal library at Windsor.

Michael Angelo was born in 1474. He recognized the value of anatomy for painting and sculpture, and studied under Colombo, a well-known artist and anatomist of his day. Sir Christopher Wren, as Raphael, Leonardo and Angelo, was an architect. He was born in Wiltshire, 1631. He studied at Oxford. In 1666 he moved from Oxford and after the fire was asked to prepare plans for building St. Paul's Cathedral. He did some anatomical drawings, for Willis, in his collected works, gives him credit for many of the drawings in his books. Rembrandt was not an anatomist, but he painted the anatomy lesson for a well-known anatomist and surgeon who presented it to the Surgeons' Guild. It is now in the royal gallery at the Hague.

PHILADELPHIA DERMATOLOGICAL SOCIETY.

Regular Meeting, held October 17, 1905.

The President, M. B. Hartzell, M.D., in the Chair.

Case of Epithelioma.—This was presented by Dr. Arthur Van Harlingen. The patient was a woman, thirty-eight years of age, and gave the history of having had the affection for a period of at least seventeen years. The disease had attacked the right lower eyelid and involved the adjacent skin below and the conjunctiva above. Ulceration and infiltration were decided. The treatment prior to the patient's consulting Dr. Van Harlingen had consisted largely in the application of caustics. An area about $1\frac{1}{4}$ inches square, just below

the external canthus, presented the appearance such as is seen after a Thiersch skin-grafting operation, but the most careful inquiry from the patient failed to disclose any history of such an operation. The disfigurement and discomfort due to the entropion produced by the ulceration had caused the patient to seek further advice, and she was presented for the purpose of obtaining the views of the various members as to the advisability of employing the X-ray. The growth was of the flat variety, and the ordinary surgical means did not seem to be suitable for its treatment. The members of the society were unanimous in the opinion that the X-ray should be given a fair trial since the eyeball offered rather great resistance to the ray and would in all probability suffer no injury, while the effect on the epithelioma, no doubt, would be most gratifying.

Sarcoma of the Mucous Membrane of the Mouth.

—This case was exhibited by Dr. J. V. Shoemaker. The patient was a man, forty-three years of age, and gave a history of having had the condition for a period of about twenty months. He had consulted several prominent surgeons of this and other cities, all of whom had advised excision. Inspection showed the presence of a rugous growth of the mucous membrane covering the hard palate, which growth seemed to be heaped up somewhat around the bases of the teeth. Microscopic examination of a section of the growth had been made under Dr. Shoemaker's direction, and showed the presence of a small cell sarcoma. Dr. Pfahler made a skiagraph which showed that the bone was involved by the growth. Dr. Shoemaker stated that the cases of this character within his observation had terminated fatally even when subjected to major surgical operations, and consequently he had employed in this instance the X-ray for its therapeutic effect. When first seen, two weeks prior to this meeting, the patient was able to eat and speak only with the greatest difficulty. He had now had daily treatments for this period. A high vacuum tube was employed at a distance of 15 inches from the outside, with the current intense enough to render the platinum red-hot, each exposure lasting from 6 to 8 minutes. This treatment had made a decided impression on the growth, according to the statements of Dr. Shoemaker, Dr. Pfahler and the patient.

Dr. Stelwagon, in discussing the case, suggested the use of arsenic, internally, in addition.

Dr. Hartzell was of the opinion that any surgical operation would necessarily be futile, owing to the location and the diffuse character of the growth.

A Case of Anchylosis of the Jaw Incident to an Operation for the Removal of a Malignant Growth, Treated by the X-ray.

—This was shown by Dr. G. E. Pfahler. This patient was exhibited on a number of occasions before, in order that the society might watch the improvement from time to time. The benefit had been marked. The recurrence of the growth had been effaced to a great extent, and the patient had obtained considerable freedom of motion of the jaw by the treatment.

Epithelioma of the Mucous Membrane of the Mouth.

—This was also shown by Dr. G. E. Pfahler. The patient, a man, sixty-five years of age, had been a brass tester by trade, and thought the affection was to be attributed to his work. The condition had existed for about four months, and consisted of a whitish patch about 1 inch long and $\frac{1}{2}$ inch wide, situated on the left side of the roof of the mouth. The patient gave a history of having had some very vague lesion on the left cheek thirty-five years previously. The X-ray had been employed for the mouth condition by Dr. Pfahler with decided improvement.

Tattoo-Mark Effaced by a Chronic Eczema.—This case was brought before the society by Dr. S. H. Brown. The patient was a man of seventy-five years of age and when a boy had tattooed his initials on his right forearm, the marks of which had persisted until two years ago, when he developed a violent type of eczema which lasted, with intermissions and exacerbations, until the present date. Within the last month the eczema had subsided materially, and it was then discovered that the tattoo-marks were to a large extent effaced, white lines resembling scar-tissue being left to mark the site of the former pigmentation. The possibility of this result being due to the local leucocytosis incident to the eczema was remarked by Dr. Hartzell.

Exfoliation of the Skin Incident to Erythema Scarlatinoides.—Photographs of this were also shown by Dr. S. H. Brown. The patient was a man twenty-three years of age; had had three attacks of typical erythema scarlatinoides, in one of which the condition was mistaken for scarlatina, and he was accordingly quarantined. In each attack the fever had lasted about three days, after which desquamation of the entire body occurred. Casts of the hands and feet had been shed at the same time. The photographs which had been taken by Dr. Hartzell showed this condition very well.

Syphilis.—This case was shown by Dr. H. W. Stelwagon. The patient was a colored woman, thirty-five years of age, and when first seen presented a crusted lesion on the chin, which at first glance resembled somewhat impetigo contagiosa. After three weeks' treatment with a simple local application the lesion underwent involution. At this date there was slight infiltration, pigmentation and slight scarring.

Another case of this nature was exhibited by Dr. C. N. Davis. The patient was a colored woman, thirty-seven years of age. In 1901 she was first seen and presented erythemato-squamous lesions, gyrate in form on the cheek and upper lip. These disappeared under antisyphilitic remedies. She returned within a few weeks, with a recurrence of the same kind of lesions in the same location.

Epithelioma of the Dorsal Surface of the Hand.—This case was also brought to the notice of the Society by Dr. Stelwagon. The patient was a man, sixty-six years of age, and a laborer by trade. The skin covering the region between the metacarpal bones of the thumb and index finger and that of the metacarpal bone of the thumb was the area in which the disease was situated. A vegetative lesion was also present at the left angle of the mouth. The X-ray was being employed with success.

Photographs illustrating a method of bringing out cutaneous pigmentation by sepia toning were shown by Dr. M. B. Hartzell.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held October 25, 1905.

The President, James M. Anders, M.D., in the Chair.

The Operative Treatment of Fractures of the Patella.—Dr. John H. Gibbon stated that the two factors which rendered the non-operative treatment of fractures of the patella difficult were, first, the attachment to the upper fragment of a powerful group of muscles which, if not properly controlled, constantly tended to separate the fragments; and, second, the interposition of ligamentous or tendinous structures between the fractured surfaces. The latter he considered by far the most important and most difficult to overcome, and one which could

not be obviated, except by operation. The operation, he claimed, was justifiable if done in an absolutely aseptic manner. He has found in every case he has operated upon the fragments of the broken patella covered with fibrous tissue. Multiple fracture was mentioned as another complication which made mechanical coaptation uncertain and difficult. Dr. Gibbon believed that the treatment of fractures of the patella should consist either of the simple splint method or of one of the operative procedures which included a complete exposure of the fractured bone and torn ligaments. All the intermediate methods, while possessing none of the advantages of the open method, had the same danger as the open method, namely, sepsis. Reference was made to Stimson who, in about forty cases in which the subcuticular suture was used, had two severe infections with stiff joint, while in a series of about two hundred cases treated by the open method there was but one slight infection and no stiffness of joint. Suture of the bone alone he mentioned as having passed out of use, the operation being done either by a simple suture of the lateral ligaments and fibrous tissue over the bone, on this with the addition of one or two sutures through the patella itself.

Early Operation Advocated.—When operation was not done immediately, a tight bandage with ice-bags should be applied to prevent effusion of blood. The incision recommended was a transverse curvilinear, allowing easy access to the torn ligaments. An absorbable suture, preferably chromicized catgut, he said, should be employed and the sutures should not be tied very tight. The leg should be dressed on a posterior splint and well elevated; the dressing changed at the end of a week and the stitches removed. Later the splint should be removed at frequent intervals and massage practised. After three or four weeks the splint could be discarded when the patient was in bed and massage regularly employed. He advised passive flexion of the leg after four weeks. The period of convalescence after the operative treatment was declared to be less than half that following the splint method. Dr. Gibbon reported seven consecutive operations without complication and with excellent anatomical and functional result. Four of the cases were exhibited. Two were over sixty years of age. While he admitted a certain amount of enthusiasm regarding the operative treatment, Dr. Gibbon said it should only be undertaken in a well-appointed operating room by a surgeon who has, and whose assistants have, developed what has been called the "aseptic habit." Where the operator has not had a great deal of experience, and where the surroundings are not perfectly aseptic, he declared it to be far wiser and safer to pursue the splint treatment, for, if suppuration occurred, a stiff joint, the loss of the leg, or even death, might result.

Dr. John B. Shober referred to the development of the open method and attributed the success attendant upon it to the greater attention given to the ligaments in freeing the overlapping fibrous tissue. Formerly the major attention had been given to the coaptation of the bones by the use of silver wire. He agreed that the operation was a serious one and to be undertaken only under the conditions pointed out by the author.

Dr. John B. Roberts believed that the operation was a good one, but that in the treatment of fractures there was needed an operation which the

average man could do, so that it would not be necessary to send all patients to experts. With the proper sterilization of the parts, the needle and the thread, he thought that with the subcutaneous purse-string suture a practical and satisfactory operation was offered. The periosteum falling between the fractured bone he endeavored to get rid of by rubbing the two parts together. This operation he thought was so simple that it ought in the hands of many take the place of the more serious ones which could only be undertaken under ideal conditions.

Dr. William L. Rodman believed the subcutaneous operation more dangerous than the aseptic open method. He felt that the open operation should be surrounded with restrictions in old subjects and in patients with visceral disease and confined to young men leading active lives. He did not believe that the soft structures falling between the ends of the bones could be eliminated, except by the open operation. He agreed with Dr. Gibbon in the advantage of the curvilinear incision. He did not approve of the use of buried silver wire and had come to regard wiring the bone unnecessary. He would hesitate about operating immediately and preferred to wait for the subsidence of the acute inflammatory symptoms. He thought the patients exhibited demonstrated forcibly the value of the operation in suitable cases.

Dr. A. C. Wood agreed with Dr. Gibbon in practically all that he had said. He believed that modern surgery tended more and more to get away from subcutaneous operations, and believed that a man who could not be trusted with aseptic technic to open a joint could not be trusted to pass a subcutaneous ligature. Dr. Wood, in operating, said that he made the incision above the patella involving a part of the skin which was thick and upon which, practically, there was no pressure. This also, he thought, favored drainage. He still unites the bone as well as the capsule and ligaments, though the method employed was a modification of that formerly practised. When the parts are brought together the knot is at a point where there is no pressure.

Dr. John B. Roberts asked Dr. Gibbon what treatment he employed with the cases too old to be subjected to the risks of the open operation and those with visceral disease referred to by Dr. Rodman.

Dr. Gibbon, in closing, agreed with Dr. Wood that a man incapable of doing an aseptic operation should not be trusted with the subcutaneous method. He thought that the figures of Stimson argued well for the open method of operation. Answering Dr. Roberts, he said such cases were treated on the posterior splint with elevation of the leg.

Two Cases of Severe General Infection of Obscure Origin.—Dr. H. B. Allyn reported two cases of severe general infection ending in death. In the first case of a boy, four years old, complained of abdominal pain, had vomiting and delirium, and died on the third day of a sudden large pleural hemorrhage. At autopsy pure cultures of an undescribed form of colon bacillus were obtained from the spleen and enlarged mesenteric gland, and the same organism was found in the culture from an enlarged Peyer's patch. The disease was not hemorrhagic typhoid.

In the second case, a boy, nine months old, developed in succession a small patch of consolidated lung, vomiting, purpura, otitis media, arthritis,

bronchitis, nephritis, meningitis, and died after an illness of twenty-five days. There was no autopsy. Cultures made from the throat mucus and the spinal fluid showed only a small diplococcus which was not that of pneumonia or cerebrospinal meningitis. Dr. Allyn expressed the hope that these obscure cases would be cleared up by the combined aid of the bacteriologist and physiological chemist, and regretted the tendency to overlook a general infection when there was present a prominent local symptom.

New Method of Surgical Anesthesia.—Dr. W. Wayne Babcock pointed out the antiquity of surgical anesthesia as produced by narcotic drugs, and called attention to the fact that the mandragora in use by surgeons from the time of Herodotus until the thirteenth century contained scopolamine, which has now, after the lapse of seven centuries, been reintroduced into surgical practice. Babcock has experimented with a number of solanaceous and hypnotic alkaloids, and finds that apomorphine is the most powerful adjuvant in scopolamine-morphine narcosis. When aided by apomorphine, over 70 per cent. of the patients have been successfully narcotized, while previous writers have only succeeded in narcotizing from nine to twenty-six per cent. of their patients, the remainder requiring ether or chloroform. The method of the author was given as follows: 1-6 gr. of morphine sulph. with 1-100 gr. of scopolamine hydrobrom., given one hour before the operation, and this followed by an enema containing spiritus ætheris comp., ½ oz.; spiritus frumenti, ½ oz.; warm water, 4 ounces. Fifteen minutes later the hypodermic is repeated, and twenty minutes after the second hypodermic a third, containing 1-100 gr. of scopolamine with 1-30 to 1-12 gr. apomorphine hydrochloride is given. The dose of apomorphine is regulated by the condition of the patient and the strength of the pulse, and is usually followed in from three to ten minutes by surgical anesthesia. If the patient shows a tolerance for drugs, the apomorphine, at times associated with morphine, is repeated in a dose proportionate to the patient's condition. In a small percentage of cases which prove rebellious to the narcotic the author said that it might be desirable to cautiously administer a minute quantity of ether or chloroform rather than repeat the injection of the narcotics. The anesthesia produced, as a rule, he said, lasted two or more hours, and the patient usually was in better condition toward the end of the operation than near the beginning. The author has successfully used the method as the sole anesthetic in operations upon the skull, face, larynx, gall-bladder, stomach, kidneys, pelvic organs and extremities, and thinks it has a special field in operations involving the upper respiratory tract.

Notes on General Anesthetics, with Special Reference to Scopolamine-Morphine Anesthesia.—Dr. A. C. Wood presented this paper, much of which corresponded closely with the paper by Dr. Babcock. His experience regarding the time required for full anesthesia differed somewhat from that of Dr. Babcock. The real difference he thought was not so much due to the idiosyncrasy of the patient as to the question of a reliable and uniform preparation of the drug. The contra-indications for administration he considered of more importance than the indications. He believed this form of anesthesia might be used in any case, in which there were no contra-indications, provided absolute muscular

relaxation was not essential. He regarded it a satisfactory adjuvant to ether and chloroform. He would hesitate to use it in operations involving the mouth and air passages, fearing that with the profound narcosis sometimes produced the patient could not take care of the mucus or blood in the mouth. Dr. Wood's attention was first directed to scopolamine-morphine by Dr. Henry Norris in the University Hospital. Of 15 cases in which he has used it the success might be considered perfect in eight. In one appendectomy there was no movement of the muscles, no nausea and the convalescence was satisfactory in every way. He believed that the results in the use of the anesthetic would be better in proportion with the greater care exercised in its selection and administration.

Dr. William L. Rodman's experience with this form of anesthetic, he said, was limited to one case and that the one case enabled him to confirm what had been said by the two essayists. While the anesthesia was not complete it was made so by a very small quantity of ether. He would be disposed to use it more fully, although he thought it evident that it could only be looked upon as an adjuvant to ether and chloroform. He regretted that he had not been able to employ it in a case in which sufficient ether or chloroform could not be taken by the patient when a greater operation than anticipated had been found necessary after opening the abdomen and which had to be abandoned. He thought it might be of much value in operations upon the genito-urinary tract. He thought all surgeons were remiss in not more fully availing themselves of the use of nitrous oxide preceding the administration of ether, and predicted a more general use of this method in this country than at present.

Dr. Ernest Laplace said that he had used scopolamine-morphine but a few times, and that while the effects were encouraging, he had not dared go as far as indicated by the papers of the evening. He would say, however, that with ether as a concomitant there had been but very few subsequent unpleasant symptoms. On the other hand, while in Paris and Germany, he had been rather discouraged from its use.

Dr. Alice M. Seabrooke referred to three cases at the Woman's Hospital in which scopolamine-morphine had been used with success. One was a case of carcinoma of the omentum, one a hysterical child, and the third case that of an aged woman with gall-stones.

Dr. H. C. Wood, Jr., thought the name morphine-anesthesia better than scopolamine-morphine. The question of the introduction of a new anesthetic, he said, depended upon its comparative safety and that the number of cases in the present issue was so small that no absolute deductions could be drawn. He thought it well demonstrated that the administration of morphine, preceding that of ether, lessened many of the unpleasant sensations produced by ether, but that it was equally well demonstrated that it depressed respiration. He considered nitrous oxide gas a much better drug with which to precede ether.

Dr. John B. Roberts said that if scopolamine were identical with hyoscine he could not understand the necessity for such small doses as had been indicated.

Dr. Babcock, in closing, cited one or two cases which had convinced him of the value of this method

of anesthesia in operations about the upper respiratory tract.

Dr. Wood, in closing, thought there was legitimate ground for speaking of the drug as scopolamine-morphine rather than as morphine-anesthesia, as suggested by Dr. Wood. He was convinced that the effect of scopolamine-morphine was quite different from that of morphine given in any form he had seen. He agreed with Dr. Wood upon the question of mortality; at the same time, Dr. Wood's illustrious father, Horatio C. Wood, was authority for the statement that there was no case on record of fatal poisoning from the drug. Replying to Dr. Roberts, relative to the small dosage, he admitted a feeling of great responsibility in handling a new drug.

BOOK REVIEWS.

METHODS OF MORBID HISTOLOGY AND CLINICAL PATHOLOGY. By I. WALKER HALL, M.D., Lecturer and Demonstrator in Pathology, Victoria University of Manchester; Pathologist to Salford Royal Hospital and to the Children's Hospital, Pendlebury, and G. HERXHEIMER, M.D., Prosektor to the Städtisches Krankenhaus, Wiesbaden. J. B. Lippincott Company, Philadelphia; William Green & Sons, Edinburgh.

EVEN though the pathologist has two excellent works of reference in Lee's *Vade Mecum* and the German *Encyclopedia of Microtechnique* recently published, we believe that there has been a real need for this excellent work of Hall and Herxheimer. The modern development of finer histological methods which are now indispensable to the accurate study of pathological lesions has been followed by so large a train of literature that the task to separate the wheat from the chaff is no longer an easy one. What is needed, particularly in the English language, is not so much an encyclopedia, but concise text-books which lighten the arduous task of the beginner and serve as trustworthy guides for the advanced student and save him time and labor in looking up journal literature for the latest methods. And, indeed, the volume is strictly up to date; it contains a good description of the Mallory stains for the connective tissue, the various combinations of the Weigert elastic tissue stain, as recommended by Fischer, the different stains employed by Unna for the study of cell structure and other approved stains which have not yet found their way into text-books. Among minor omissions may be mentioned the method of fastening paraffin sections to slides by means of celloidin, which has given the best results in our hands, and the formula for Harris' hematoxylin which is less tedious to prepare than the usual solutions. We can unhesitatingly recommend the book and believe it to be an excellent investment for every laboratory.

THE PRINCIPLES OF BACTERIOLOGY. By A. C. ABBOTT, M.D. Seventh edition. Lea Brothers & Company, Philadelphia and New York.

ABBOTT'S BACTERIOLOGY has been before the medical profession for so long a period and has been so universally indorsed that it hardly requires any further commendation. The seventh edition has been thoroughly enlarged and revised; the difficult chapter on Infection and Immunity has been completely rewritten and brought up to date, while certain less important species of bacteria have been dropped. The increasing importance of the bacteriological diagnosis of typhoid fever is appreciated for all the more recent and approved

culture media for the separation of typhoid from colon are mentioned with sufficient detail. We regret to say that the paragraph on paratyphoid has turned out somewhat meager and that a clear idea of the cultural properties of the germs intermediate between typhoid and colon can hardly be obtained. Later researches, such as those upon the *Spirochæta pallida* of syphilis, the capsule stain of Buerger, the classification of streptococci, according to Schottmüller, and the recent work of the pneumonia commission have probably appeared too late, but we trust that they will find a proper place in a later edition.

THE PRACTICE OF GYNECOLOGY. A Text-Book for Practitioners and Students. By WILLIAM E. ASHTON, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College, Philadelphia. W. B. Saunders & Co., Philadelphia and London.

THIS work is a new departure in text-book making. The author, in his description of gynecologic diseases, allows nothing to be taken for granted by the reader, but states what should be done in every case, following his statements with directions and illustrations so explicit that they may be intelligently and easily carried out. The subject is fully considered in both medical and surgical aspects, the basis of discussion being the author's own experience. A distinctly original feature of the book is the thousand and more line drawings made from actual apparatus, living models and dissections on the cadaver, in an endeavor to show each step of methods of diagnosis and treatment as well as the technic of various operations, together with the required instruments. The book is arranged on an anatomic basis which permits of a discussion of the methods of examining each organ before describing its disease. This plan enables the practitioner to study different methods of examination step by step, and to familiarize himself with the subject in a practical manner. A chapter on Microscopic and Bacteriologic Examinations gives the practitioner precise instructions how to obtain and preserve morbid secretions and tissues and deliver them in proper condition to the pathologist. This instruction places the practitioner in close touch with the laboratory and permits him to take advantage of scientific methods of diagnosis. Especial attention has been given to the consideration of visceral injuries, a subject usually considered outside the domain of gynecology. To the practitioner who is moderately well informed, there is much of the book that will prove wearisome reading. The volume will be especially valued for its detail, however, by many who have lacked opportunities for acquiring the numerous "small points" in other ways.

COLOR-VISION AND COLOR-BLINDNESS. A Practical Manual for Railroad Surgeons. By J. ELLIS JENNINGS, M.D. (University of Pennsylvania). Formerly Clinical Assistant Royal London Ophthalmic Hospital; Professor of Diseases of the Eye, Medical Department Barnes University, St. Louis; Ophthalmic Surgeon to the Centenary Hospital; Ophthalmic and Aural Surgeons to the St. Louis and San Francisco Railway System, etc., etc. Second edition. Thoroughly Revised with Illustrations. 132 Pages. Crown Octavo. F. A. Davis Company, Philadelphia, Pa.

IN the second edition of this valuable work, the author has added important material which brings the book quite up to date. As is well said in the preface: "The dangers of defective form and color sense in railway employees have been set forth so convincingly by the medical profession that to-day practically every

railroad company in the country requires employees to be examined as to their color sense, vision and hearing." Much of this good work has been done since the publication of this manual in 1896. In the present edition the following new matter has been added:

1. A chapter describing the method of testing the form and light sense.

2. A chapter giving the rules for the examination of the sight and hearing of railroad employees adopted by the House of Delegates of the American Medical Association.

3. Descriptions of Williams's and Thomson's lanterns, Williams's and Black's semaphore charts and Abney's pellet test for central scotoma.

4. Five new illustrations.

We know of no book in which may be found such a concise and clear description of the various theories of this difficult subject, combined with a very satisfactory exposition of the practical tests for color blindness.

It would have been better either to have omitted the table of references at the end of the book, or to have brought it down to the present time; it is however of interest in a historical sense.

BOOKS RECEIVED.

DISSECTING MANUAL. By Dr. W. H. Rockwell, Jr. 8vo, 306 pages. Wm. Wood & Co., New York.

PRACTICAL MASSAGE IN TWENTY LESSONS. By Dr. Hartvig Nissen. 12mo, 168 pages. Illustrated. F. A. Davis Co., Philadelphia.

HYSTERIA AND NEURASTHENIA. By Dr. J. Mitchell Clarke. 12mo, 298 pages. Illustrated. John Lane, London and New York.

A TEXT-BOOK OF ANATOMY. By Dr. D. J. Cunningham. 8vo, 1,840 pages. Illustrated. Second edition. Wm. Wood & Co., New York.

A TEXT BOOK ON THE PRACTICE OF MEDICINE. By Dr. J. M. French. Second edition. 8vo, 780 pages. Illustrated. Wm. Wood & Co., New York.

INTERNATIONAL CLINICS. Volume II, 1905. Dr. A. O. J. Kelly. 8vo, 310 pages. Illustrated. J. B. Lippincott Company, Philadelphia and London.

TEXT BOOK ON THE PRACTICE OF GYNECOLOGY. By Dr. W. E. Ashton. 8vo, 1079 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

TEXT-BOOK OF CLINICAL DIAGNOSIS. By Dr. L. N. Boston. Second edition. 8vo, 563 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

TEXT-BOOK OF PHYSIOLOGY. By Dr. W. S. Hall. Second edition. 8vo, 795 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

PRACTICE OF MEDICINE. By Dr. Hughes Dayton. Edited by V. C. Pedersen. 12mo, 324 pages. Lea Brothers & Company, Philadelphia and New York.

GRAY'S ANATOMY. New American edition. Edited by Dr. J. A. C. DaCosta. 8vo, 1,600 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

SOUTHERN SURGICAL AND GYNECOLOGICAL TRANSACTIONS. Volume XVII. Seventeenth Session. 8vo, 521 pages. Illustrated. Published by the Association. 1905.

SEXUAL DISORDERS OF THE MALE AND FEMALE. By Dr. R. W. Taylor. Third edition. 8vo, 525 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

PSYCHIC TREATMENT OF NERVOUS DISORDERS. By Dr. P. Dubois. Edited by Drs. S. E. Jelliffe and W. A. White. 8vo, 466 pages. Illustrated. Funk & Wagnalls, New York and London.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, DECEMBER 23, 1905.

No. 26.

ORIGINAL ARTICLES.

ADDRESS ON THE THERAPEUTIC OUTLOOK IN PEDIATRICS.¹

BY L. EMMETT HOLT, M.D., LL.D.,

OF NEW YORK;

PROFESSOR OF DISEASES OF CHILDREN, COLLEGE OF PHYSICIANS AND SURGEONS (COLUMBIA UNIVERSITY).

WITHOUT much argument, I think we will agree that the highest branch of medicine is therapeutics. The ultimate object of all our study and experiment is to relieve suffering and to prolong life. The general opinion, however, prevails, and I think is borne out by facts, that in internal medicine, at least, advances in therapeutics have not kept pace with the progress of knowledge in etiology, pathology and diagnosis. Into the reasons for this we need not now stop to inquire; but it is certainly true that in no department of medicine does tradition still hold sway as it does in the medical treatment of the sick.

The brilliant results of our few specific remedies for disease, such as diphtheria antitoxin, and the thyroid extract for cretinism, seem to have fairly carried us away in our search for specific remedies for all diseases, especially for the acute infections, and nothing else appeared for a time to be much worth while. But we have proceeded far enough already to make it plain that such short cuts in therapeutics are to be the exception, not the rule. In most diseased conditions, certainly in all chronic ones, the best results will be achieved only by patiently and intelligently applying our better understanding of physiology and hygiene, and our newly-gained knowledge in physiological chemistry.

As was to have been expected, disappointment followed the trial of one after another of a series of vaunted specifics. It is evident that we must wait some time yet before therapeutics is brought to the exactness of pure science. To be sure, we are gradually but steadily outgrowing the old idea that disease is cured by drugs. But what has taken its place? With some, perhaps with most, has come the belief that unless the condition is one amenable to surgery, treatment really amounts to very little. Personally I have little sympathy with this opinion. I believe that the results in most cases of a purely medical character with which we have to deal are determined in large measure by the management that the case receives.

In the treatment of sick children, at least, there are two subjects which are only beginning to be understood, but whose importance it is difficult to overestimate. I refer to dietetics and

general hygiene. We may perhaps think of these as measures of prophylaxis, and so indeed they are; but if they aid in preventing disease, they are even more valuable in restoring to health those who fall ill. The nutrition of the growing child, whether sick or well, should be the first concern of the physician to whose care young lives are entrusted. Nutrition is influenced mainly by diet and hygiene. Just here is the emphasis to be put in modern pediatrics, and it is to the importance of these subjects that I wish especially to call your attention.

To begin with dietetics: We are familiar with the large part that infant-feeding plays in the health of infancy and childhood. This subject has been so much and so well discussed that it need not be enlarged upon here. With the steady decline of maternal nursing, infant-feeding has become one of the great problems of our time. The general principles have now been pretty well worked out; what is needed is a wider knowledge and more intelligent application of them by the profession as a whole. As well expect grapes from thorns or figs from thistles, as healthy children reared in defiance of the rules of physiology on foods lacking the essentials of normal nutrition, like most of the proprietary foods on the market.

It is, however, with the feeding of sick children that I am now particularly concerned. The necessity of treating disorders of digestion in infants by changes in food rather than by medicine is not sufficiently appreciated. In most such disturbances the cause is the food and only the food, whether the patient be a nursing infant or one artificially fed. To find out the particular element in the food that has disturbed the normal chemistry of digestion is the first step in the treatment.

As an illustration, let me cite the case of a young mother who was nursing her infant entirely. For the first few months the gain was rapid; then the bowels became loose; stools first yellow, afterwards green, and at times reaching the number of six to eight a day. The grandfather, a surgeon of renown, and in his early years a family physician of large experience, said to the young physician who had charge of the infant, "I do not wish to dictate, but in my day a baby with stools like that got calomel." The suggestion was not followed, but an examination of the mother's milk was made, revealing the existence of a fat content over 7 per cent. The explanation of the diarrhea was now clear. The milk acted upon the child's bowels like a cathartic. The green stools were simply an evidence of the rapidity with which the intestinal contents were being hurried

¹ Delivered before the Pennsylvania State Medical Society, at Scranton, September 26, 1905.

through the bowels. Attention to the mother's diet and régime and the substitution of part bottle feeding with a milk containing a very low fat percentage gradually brought about a normal condition of the bowels, and the mother was able to continue nursing successfully. The grandfather, it may be said in passing, was quite convinced that the treatment of children had advanced since his day.

Another mother nursed her infant successfully for five months, the only abnormal symptoms being that the stools were rather freer than normal, although in character not particularly bad. A sister of the mother now became seriously ill; hopelessly so it was soon learned. Instead of six or eight ounces as previously, the nursing baby now gained only an ounce or two a week. The stools became more frequent and showed curds, afterwards mucus in considerable amount. There was much intestinal flatulence, and at times colic. A full chemical examination of the milk was not made in this case, but the symptoms pointed unmistakably to a mild intestinal catarrh, from excessively high proteids. This condition was evidently due to the worry and anxiety of the mother. Breast feeding was stopped entirely for two days as an experiment, and the child, put upon a weak mixture of cow's milk; fat, 2 per cent.; sugar, 6 per cent.; proteids, .75 per cent. Marked improvement immediately followed. The breast and the bottle were then given alternately, but the intestinal symptoms returned as soon as even this amount of nursing was allowed. The cause of the disturbance of the mother's milk being one that could not be removed, it was deemed best, even though her supply was abundant, to discontinue nursing altogether. Within three days the stools became smooth and yellow and of normal frequency, and the mucus disappeared. Artificial feeding was continued afterward with steady, uneventful progress.

The futility of treating cases like those mentioned by drugs is the point that I wish to impress. I often see cases of this kind which had been treated by diarrhea mixtures for weeks without the slightest benefit; yet immediate improvement followed a change in diet, simply for the reason that the cause of the disturbance, the improper food, was now removed.

Most infants are born with healthy digestive organs, and the greater part of those chronic digestive troubles which are met with in practice are the direct result of bad management in feeding on the part of the mother, nurse or physician. I feel sure that every one of large experience in the treatment of sick children will bear me out in this statement. In such disorders we must think of diet not as an adjuvant to treatment, but as the essential treatment.

Attacks of acute indigestion in infants must be managed according to dietetic rules. While chronic or habitual indigestion has reference generally to one special element of the food—the

fats, the carbohydrates or the proteids—in attacks of acute indigestion, all forms of food are alike injurious, and for the time it is imperative that all be stopped. I often tell my patients that there is one sovereign remedy for acute indigestion, and only one, viz., starvation. But this is not necessary for very long, and much judgment and experience are required in returning to a normal diet. It should be remembered that the carbohydrates are the elements most easily digested, and hence these may be used soonest and in the largest proportion; that considerable difficulty exists with the fats and that much aid may be afforded in the digestion of the difficult proteids by partial predigestion; also by the removal of the casein from milk by precipitation, as in the use of whey. The same principles apply with equal force to feeding during acute disease, especially the acute febrile diseases.

The step from disorders of digestion, whether acute or chronic, to acute infections of the gastrointestinal tract is but a short one. Whether the majority of these infections come from without or whether they arise in the intestine, we must admit the great importance of acute indigestion as a predisposing condition, or as the first step in the pathological process. An intestine filled with a mass of food which has not been or cannot be digested furnishes the most favorable conditions for the development of any pathogenic germs which may be there present. From this source arise our acute toxemias and acute intestinal inflammations. I do not desire to enter here fully into a discussion of the pathological side of this question, but only to consider the general principles of treatment, especially the dietetic treatment.

As a primary condition, then, we have almost complete arrest of digestion of all kinds of food—carbohydrates, fats and proteids. The introduction at this time of any form of food only serves to increase the intestinal disorder. At a later stage, when food is allowed, two elements must be carefully avoided: first, the fats, because they are absorbed with difficulty in any catarrhal condition of the bowel, and as in consequence they are likely to pass through the intestines like a cathartic; secondly, the milk proteids, because they are digested almost entirely in the intestine, because their digestion is particularly difficult in infants, and because from their decomposition active poisons are certain to develop. For these reasons, milk, particularly cow's milk, must be withheld for a considerable time. The only food at first advisable, therefore, is in the form of carbohydrates, either as sugars or starches, and, in some cases, animal broths. The mistake is usually made of feeding these infants too much and too early, not appreciating how long it takes for the organs of digestion to recover sufficiently to do their work.

Water in abundance is essential. The drain from the tissues through the fluid movements is very great, and water must be supplied freely

and at all times. The only limit to the amount given should be the condition of the stomach; unless there is vomiting, one may safely allow the child to take almost as much water as he will. It is surprising, if water is allowed, how little these children seem to mind the deprivation of food, even for several days.

By these means, combined with the intelligent use of evacuants—cathartics, stomach washing and intestinal irrigation—we are to assist Nature, who is doing her part in a wonderful way to overcome the disorder; taking away appetite to prevent food from being ingested; removing the offending agents by vomiting, and through quickened peristalsis and increased secretions; protecting the irritated and inflamed membrane with a secretion of mucus, and neutralizing irritant, acid poisons by a copious secretion of an alkaline serum from the blood.

The third important indication is complete rest. First, as already pointed out, to the digestive organs; and secondly, to the child generally. Since the body is starving temporarily, because of the cutting off of all food, the output of physical energy should be the least possible. Rest should be absolute. Exercise or exertion of any kind not only increases the body waste, but tends to stimulate abnormal intestinal peristalsis.

These, then, are the essential conditions to be fulfilled in acute intestinal infections. Evacuants, diet, rest, water. In comparison with these measures, the use of the various diarrhea mixtures is a matter of secondary importance; aye, more than this, most of them do positive harm.

In the chronic disturbances of digestion, in children who have passed beyond the age of infancy, careful dietetic treatment is not only desirable, it is really the only treatment that accomplishes anything permanent.

A typical condition is that of a child three or four years old suffering from habitual flatulence, occasional abdominal pains, moderate tympanites and mucus in the stools, which are sometimes constipated and sometimes loose. This is a familiar picture which we term chronic intestinal indigestion, with secondary catarrh of the colon of a mild character. We see these symptoms in all degrees of severity. In the most marked types, the general nutrition has suffered profoundly. There is anemia, a loss of weight amounting sometimes to emaciation, and almost any nervous symptom that can be imagined may be present. The diagnosis of abdominal tuberculosis is often made on account of the enlarged abdomen, with the constitutional symptoms just mentioned.

The plan of treatment very often followed is frequent intestinal irrigation and internally the use of various intestinal antiseptics, while fruits or cream or malted foods are given to overcome the habitual constipation. Most of these measures I believe to be without value and several of them very injurious. Unless there are serious lesions present, such as extreme dilatation of the colon, or intestinal ulceration, I have seldom seen

one of these cases which was not cured completely by careful dietetic treatment, aided only by general hygiene.

Not only must a proper diet be given, it must in most cases be continued for a long time before any material benefit is seen. This forms one of the principal difficulties in treatment, viz., to hold the patient to the exclusive diet long enough to gain permanent results. In most of these cases fats in any form, especially cream, are badly borne. In a recent case of my own, an analysis showed that 65 per cent. of the solids of the feces consisted of fat. The marked tympanites present is usually due chiefly to excessive fermentation in the carbohydrates. In fact, the condition is often brought about by the early and excessive use of carbohydrates, generally in the form of starchy foods. These elements must, therefore, for a time, be entirely omitted, or given in very small quantities. In severe cases, skimmed milk, often best given partially peptonized, with the addition of rare beef, has afforded me in the beginning more satisfaction than any other articles of diet.

But not soon do organs long deranged by maltreatment begin to perform their functions normally. Months are sometimes necessary before anything permanent in the direction of improvement is seen, and during this period the closest observation of weight, stools and other symptoms is necessary. Relapses come easily. One of my patients who had just begun to gain weight after three months of great effort on my part, went to her country home and passed again into the hands of her old physician, who said, "Her nutrition is poor; she must be fed up." And so he began the feeding-up process, which consisted in adding to the diet the very articles which had been so carefully excluded: cream, potatoes, rice and bread. The result was an acute relapse, which nearly cost the child her life. Another long period of months was required before the effects of this mistake had entirely passed away. At the age of four years this little girl weighed only 21 pounds, with her clothes. But now the régime began to tell, and once started, her progress was uninterrupted. During the next year and a half she gained 18 pounds in weight, and at the end of the time was entirely well.

In no group of diseases is a study of the conditions of nutrition more important than in the neuroses of children. These common nervous disturbances of early life, excessive nervousness, insomnia, night terrors, habit spasm, chorea, convulsions, hysteria, enuresis and neurasthenia, almost invariably have their origin in a disordered nutrition, depending upon improper diet and a faulty régime. The faulty régime should perhaps be placed first, in these cases, as it is often the chief factor. It is absolutely futile to think that we can cure these patients simply by giving them drugs. Still, one finds that the dependence upon internal medication to be the chief resource

of the great body of the profession in these conditions. Thus, children with chorea, week after week, receive arsenic in full doses, with only the most meager suggestions to parents as to how the child is to live. When the most important thing in the case may be to stop tea or coffee; to send the girl to bed at seven o'clock instead of allowing her to sit up until ten; to stop school entirely, even though it involves the sacrifice of a hard-won position at the head of the class; to eat simple food, at regular times, instead of trash of all descriptions and at all times; to have regular hours for recreation and opportunity for fresh air, and not to have every hour out of school filled with some other definite engagement, like French, or music, or other classes. No amount of Fowler's solution can be expected to benefit unless these basic conditions are corrected and a proper life for a normal child is established. As physicians, we make a great mistake in the lack of definiteness of directions which we give to parents and nurses in these conditions. We forget how little they appreciate where the fault really lies, and that they still hug the delusion that children who are not well require medicine as the essential condition of recovery and that all else is of secondary importance, or of no importance even.

What has been said about chorea may be repeated regarding attacks of convulsions. The child who has such attacks several times in a year is familiar to the general practitioner. I see many such every year, and what always surprises me is the regularity with which the bromide treatment has been followed with most of them. Few of these children have epilepsy at the time, or subsequently develop it. In the great majority of cases the attacks of convulsions are due to digestive disorders and consequent disturbances of nutrition, and when once a proper diet has been carried into effect, the chronic constipation overcome and a suitable régime inaugurated, we regularly see these attacks lessening in frequency and severity, and in a great majority entirely disappear. Drugs given for the purpose of directly affecting the convulsions have been, in my experience, absolutely without advantage, except possibly on the day of the attack or the one following, and in most cases by the disturbance of digestion which they have produced has resulted in much harm.

Besides the children who have regular attacks of chorea or convulsions, there is a very large group who have ill-defined nervous seizures, which are hard to classify. Some of these depend upon organic disease of the nervous centers, and are, therefore, hopeless; but very many also are purely functional and are connected with some disorder of nutrition. The diagnosis may not always be clear, but the therapeutic indication is generally very definite, viz., to consider the nutritive condition as the essential one until some new light appears.

Before leaving this branch of my subject I wish to say a word regarding children suffering from enuresis. This condition should be classed among the neuroses of childhood, for, in the great majority of cases, it is just this and nothing more. Some cases there are which resist all treatment and ultimately yield to time alone; but most children with this habit are greatly improved or entirely relieved by solving the problem of normal nutrition and general hygiene.

In all the large class of disorders just mentioned, it is necessary that the physician go carefully into the minutest detail of the child's daily life; the character and quantity of food, even its manner of preparation and the way in which it is eaten; the amount of water given; the nature and amount of exercise and recreation; the hours at school, of study at home, of rest and of sleep; the condition of the bowels; the character of the stools, and the urine. These are the fundamental and vital things which must be known at the outset. When grave mistakes are found, as will almost always be the case, they must be corrected and faulty conditions removed, if we would substitute normal physiological action of the digestive organs and nervous system for the abnormal ones which have grown up in consequence of a defiance of the laws of health. This takes time and patience on the part of the physician and requires a certain amount of cooperation on the part of the parent, which I may say I have seldom failed to secure from people who were at all intelligent. Following the plan mentioned, it is most gratifying to see what results can be obtained with such patients. I may say that none have given me greater satisfaction in practice.

Turning now from chronic to acute conditions, what is the position of the intelligent physician with reference to sick children? Is not his duty like that of the ship's captain in the storm? He cannot stop the gale, but he can steer the ship. In stress of weather, a good seaman looks closely after his entire vessel. Even the smallest detail does not escape him in the working of the engine, boilers, steering-gear and all machinery. So should the intelligent physician do in any serious acute illness. It is his duty to endeavor by constant watchfulness to guide the patient through the many dangers which threaten; by constant attention to see that heart, lungs, liver, kidneys, stomach and intestines are all doing their work easily and well, and that they are not hampered in it by something which he can remove or control. When the normal functions of elimination can be continued and the nutrition of the body maintained, there seems to be almost no limit to the degree of toxæmia which can be resisted.

Let me illustrate by considering somewhat in detail the management of our most frequent acute disease, pneumonia. Coming to the bedside of a child with this disease, the question a physician should ask himself is, What can I do for this child to enable him best to hold out against his

existing infection and ward off the especial dangers with which he is threatened? Inflammation of the lungs is the local reaction to the infection—Nature's method of restricting the action of the bacterial cause of the disease. Now, simply because the body is battling against such a foe is no reason why we should give drugs. There is much doubt regarding the benefit to be derived from the use of our various expectorant remedies; but there is no doubt regarding the disturbance of the stomach which they cause when given to young children. In this condition digestion is feeble at best. Let us, therefore, not interfere with it by giving a single unnecessary dose of medicine.

What are really the vital things? Surely to see to it that the body is put under the best possible conditions for natural resistance. First comes the question of a supply of pure air; never so much needed as now. It is all but universally agreed that this is the most important thing to be secured, and yet how do we see this ignored in practice. Even when there is no necessity for it we see children, sick with pneumonia, confined in small, close, ill-ventilated rooms, the air of which is continually contaminated by the breath of superfluous inmates, gas lights and even gas stoves. I have repeatedly seen the exclusion of air carried to a point of stopping the cracks about windows and doors with cotton, cutting off thus the only possible source of oxygen. The temperature of the room in lobar pneumonia seems to me to make very little difference. While I see no advantage in allowing the room temperature to fall as low as 50° or 55° F., I see no objection to it. Pure air in plenty is the essential. But in bronchopneumonia, particularly if the patient is an infant under a year old, such low temperatures are not well borne; in my experience, they increase both the cough and the dyspnea. Fresh air that is not cold is the great thing to be desired, and often is best secured if we can use two rooms alternately, each being aired, then warmed, before it is occupied. Draughts cannot be wholly ignored, but can easily be avoided by screens and by properly placing the child's bed in the room. Of great importance is the amount of air space which shall be allowed to every pneumonic patient. In hospital practice especially must this be considered, for nothing increases so much the frequency and severity of complications as overcrowding.

The question of feeding comes next. It is not without reason that we see complete anorexia during the first few days of almost every severe acute illness. During this period to urge or to force food is almost always to do harm. If food is taken it is not digested and only adds to the child's discomfort, causing vomiting or abdominal distention from intestinal fermentation. Marked tympanites by crowding upward on the diaphragm greatly embarrasses respiration and increases the dyspnea. Throughout the disease, the feeding becomes one of the most important

matters; food in such form and quantity as to nourish the body and yet not to tax the organs of digestion, only such quantities as can be digested, with no excess for intestinal putrefaction. This requires care, thought and judgment. The general mistake, I think, is to overdo the matter of feeding, especially in the most severe cases. Resulting attacks of acute indigestion are very common and often very serious, and may turn the scale against the patient. Though food must be limited in the beginning, and sometimes throughout the disease, scarcely any limit can be set to the amount of water which may be given to advantage. The kidneys are undoubtedly our principal means of eliminating toxins in all forms of acute infection, and their activity is aided by nothing so much as water, early and often. It may be given in many ways. Some infants will not touch plain water, but will take a very greatly diluted food. Some older children will take water as a weak lemonade who will not touch it otherwise. If an irritable condition of the stomach forbids the use of water by the mouth, large rectal saline injections should be given two or three times a day.

As a third essential in treatment I would place rest, often most difficult to secure, particularly if the patient is a nervous, fretful or spoiled child; but with such every unnecessary disturbance should be avoided. Physical examinations should be made no oftener than is absolutely necessary. Local applications of every form, whether for the reduction of temperature or the relief of pain, frequently do more harm than good. Such children, when they are seriously sick, crave to be let alone. They are often much injured by conscientious but ill-advised attention. The wear and tear upon the highly wrought nervous system, even by our most approved therapeutic measures, is something that we do not always justly appreciate. If we cannot help, let us at least not add to their sources of discomfort.

The measures above discussed in the treatment of pneumonia include what I should call the hygienic treatment of the disease. I believe it to be much more important than anything else; not that antipyretic measures, stimulants and nerve sedatives are not at times useful. I surely would not think of throwing them utterly to the winds; but as at present used, I do think that they do a great deal of harm. The emphasis, surely, should not be made upon them, and let us not deceive ourselves into thinking that we have cured pneumonia by them.

Yet how often do we hear from parents, "Yes, yes, these things which you have told us to do for our child are all very well; but, Doctor, what are you going to do for the pneumonia? Isn't there something that we can give for that?" Then it becomes necessary to confess that we have at present no remedy for this disease, and we should explain that if we can only take good care of the child, the child will take care of the

disease. If parents are intelligent they will see it; if they are not it may be necessary to placate them by some harmless medication.

Before leaving the subject of pneumonia, I would like to say a word regarding the cases of protracted, persistent or unresolved pneumonia—by whatever term we may choose to call it. In most cases the reason the process does not stop and the lungs clear up is because the child's general nutrition is so poor. Measures directed to improvement in this, by fresh air, careful feeding and often a change of air, are the only means by which recovery is reached.

I have gone somewhat into detail in the treatment of pneumonia. The same things, in almost the same words, might be said of typhoid fever, and in fact of most of our specific acute infections. It is the patient, not the disease, that we are to treat. Let us get rid of the notion that because the child is ill he requires medicine if he is to get well; and above all let us not get in the habit of treating the thermometer nor even the name of the disease.

I have designed in these rather desultory remarks to lay before you what I believe to be the modern tendencies of pediatrics in therapeutics. I do not desire simply to enter another protest against unnecessary and indiscriminate drug-giving to sick children, although it is my belief that this is still an evil, and a great one. Much less do I wish to convey the impression that little or nothing can be done for sick children any way and that we would best leave them to Nature altogether. I am not a therapeutic nihilist, nor even a skeptic, except as to the action of most so-called specific remedies. My thought is that a better understanding of disease and a broader knowledge of children point the way very definitely and clearly. Our greatest need to-day, I believe, is a more scientific and intelligent knowledge of practical dietetics, and a better understanding of the conditions of health and growth. We must realize that in every acute disease and chronic disorder it is of the first importance that we should have a knowledge of how we may best preserve the nutrition of the body and thus get the advantage of Nature's wonderful powers of recuperation in early life.

14 West Fifty-fifth Street.

WANDERING GALL-STONES.

BY W. L. ESTES, M.D.,
OF SOUTH BETHLEHEM, PA.

LEAVING out of consideration cases in which there could be demonstrated no actual nor palpable rupture of the gall-bladder, but which presented gross evidence of an extension of the products of inflammation from the interior of the bladder to the neighboring tissues, such as adhesions, pus, etc., instances of indubitable perforation with escape of the contents of an inflamed gall-bladder are comparatively rare. Speaking of such cases at the recent meeting of the American Surgical Society, MacClaren, of St. Paul, noted as follows: Mayo Robson out of 539 operations on the gall-bladder and bile ducts found only 25 which could be fairly said to be perforations; Wm F. Mayo in 328 cases found 16 perforations; Ochsner in 48 cases reported 1 perforation; MacClaren himself had 9 cases in 80 operations. Perforations invariably produce such inflammation in the abdominal cavity that as a rule very serious, frequently lethal, results follow. Granting a slow development of the ulceration, such strong adhesion may take place that, when the perforation does occur, the discharged contents of the gall-bladder may, for the time, be retained in a well-protected cavity and be localized almost as thoroughly as when they remained in the gall-bladder itself. If the patient survive the early effects of the septicemic condition which is produced by these inflammations, the abscesses which follow may burrow in the direction of least resistance, and if the case be let alone, and *the patient live*, these abscesses, with the pus, detritus and stones which they contain, may appear at almost any part of the posterior portion of the right abdomen. On account of the relative anatomy, however, these abscesses are apt to follow certain definite routes. The adhesive inflammation usually causes the pyloric end of the stomach, the duodenum, and the transverse colon to unite closely with the gall-bladder and the lower border of the liver, with the gastro-hepatic omentum interposed. This union is sometimes so dense that the pus and detritus find easier exit into the softened parenchyma of the liver, the gall-bladder is perforated above, and an abscess forms in the right lobe of the liver. In some instances stones are found at operation after many months of suffering, septicemia and recurrent attacks of violent pains, in the liver itself. I have had two such cases. If the ulceration occurs at the juxtaposition of gall-bladder and one of the intestines or stomach, the pus, stones, etc., will ultimately be discharged into the intestines, later to be passed out with the feces or to remain, as sometimes happens, in the form of an enterolith and block up the intestinal lumen. I have had one case of this kind. Rarely it happens that the ulceration takes place between or behind the adherent intestines and lesser omen-

The Fat of Oil Injected Subcutaneously.—An important investigation on the nature of the utilization of fat when injected subcutaneously was performed with interesting results by Y. HENDERSON and E. F. CROFUTE (*Am. Jour. Physiol.*, Sept. 1, 1905), who found that oil injected subcutaneously is readily and widely distributed through the subcutaneous spaces. Such as is not, however, transformed in situ into adipose tissue. In fact the tissues react to its presence as to any non-irritating foreign substance. In the blood, lymph, and milk it does not appear in any detectable amounts. While the oil is ultimately absorbed and utilized in metabolism, the process is extremely slow. Oil injections in any moderate amounts are, therefore, practically without nutritive value.

tum; in this case the pus, etc., is discharged into the posterior part of the right abdomen. If this occurs suddenly before strong adhesions have formed, nothing but an immediate operation will save the patient's life. Most rarely of all a large abscess may form in the mass of adhesions about the gall-bladder, and by slow and gradual stages make its way downward into the abdominal cavity. On account of the dense adhesions which usually form anteriorly, this pus is most apt to burrow through the posterior and lower part of the investing sac and will then gradually descend along the posterior walls of the abdomen between the attachment of the mesentery and the right mesocolon, sometimes perforating the mesocolon and going back into the right renal fossa, or it may descend along the anterior surface of the psoas muscle and make a large pouch under and about Poupart's ligament after it has filled up the right iliac region. The two cases I shall presently describe to you I think illustrate each a form of this possible wandering of bilious pus and detritus. The gall-stones that accompany this sort of glacial descent may be found in almost any part of the posterior portion of the right abdominal cavity. I have called gall-stones thus carried some distance from the original position in the gall-bladder, *wandering* gall-stones.

The signs and symptoms which accompany these wandering gall-stones are: A tumor which usually presents all the manifestations of an abscess, though the exact character of the swelling may be masked by adherent coils of small intestines which may lie over it anteriorly; great pain, marked interference with the functions of the stomach and intestines; jaundice is usually present only in the earlier stages, and may be absent entirely. The general symptoms are those of septicemia.

It will be appreciated at once that the signs and symptoms are the same one finds in almost any of the serious intraperitoneal inflammations. It is therefore very easy to mistake this condition for an attack of suppurative appendicitis, pancreatitis or suppurative nephritis or pyelitis. Only by careful exclusion of other possible inflammations and a careful consideration of the earlier symptoms can one arrive at a correct diagnosis. If the pus has made its way through the skin at some part of the abdomen and a sinus exists, the character of the discharge may give one an inkling of the true state of things. Otherwise the diagnosis may be difficult and the condition a very misleading one.

The two cases I have to present as illustrations are as follows:

Case I.—Mrs. J. S., aged twenty-eight years. She was sent to me by Dr. Dickenshied, of Allentown. She is married but has no living children. She had been ailing for some time, though she gave no history of violent attacks of pain; never was jaundiced; has had indigestion and irregular bowels. Several weeks before I saw her she had

persistent abdominal pain, fever, and malaise. She gradually became worse and finally became so weak and ailing that she took to her bed. Her urine was scant and turbid. A swelling made its appearance on the right side of the abdomen below the border of the ribs; this swelling was very tender and produced a constant feeling of distention. Septicemic symptoms developed, and her stomach became very irritable. She was admitted to St. Luke's Hospital. Her condition was noted as follows: A pale, weak woman who seems in great pain. Her skin is pale and moist. Pupils normal, respiration rather short and somewhat hurried, pulse 100 and rather weak, temperature 102.4° F. Heart and lungs normal, liver dulness on right continuous with the tumor, left lobe not enlarged, spleen negative. Urine straw-colored, normal odor, acid reaction, sp. gr. 1.022, albumin and sugar absent; microscopically negative. She complains of great pain in the right side of the abdomen, especially to the right of the umbilicus in the right lumbar region. There is a large tumor reaching from the right hypochondriac region to the right anterior superior iliac spine and extending back into the right lumbar region, it reaches nearly to the middle line of the abdomen. The tumor is elastic to the touch, dull on percussion, no fluctuation can be elicited, no friction sounds heard over it, no special tenderness except in the epigastric region; abdomen somewhat distended. She had just finished menstruating; the period was normal. Pelvic organs normal. She is constipated; appetite very poor. There was evidently a collection of fluid just under the abdominal walls occupying the right lumbar region chiefly. The day after her admission into the hospital, under ether anesthesia an exploratory incision was made through the anterior abdominal walls, external to the rectus muscle. Just within the abdominal cavity a large sac was opened from which gushed a quantity of seropurulent fluid that had neither a characteristic color nor odor, and which showed under examination only pus cells, broken down epithelial and connective tissue cells, red and white blood corpuscles. The index finger introduced into the cavity found that it reached far back into the right lumbar region, that it extended from the lower extremity of the right kidney to the crest of the ileum. It was smooth within and seemed to contain absolutely nothing but the thin sero-pus. Apparently it did not reach to the border of the liver, and it was firmly adherent to the surrounding organs and tissues. A counter opening was made into the lumbar region, a large rubber drainage tube was introduced through this opening, the cavity thoroughly washed out, and the anterior incision closed by sutures.

The woman's general condition improved at once; the anterior wound healed rapidly. The tube was retained in the posterior opening for about three weeks, when there was so little discharge it was left out. The discharge was puru-

lent and watery, and at no time gave any suggestion by color or otherwise of bile. After four weeks the woman was permitted to go home still having a small lumbar sinus which discharged a very little fluid. Her general condition was quite good.

For about a year I saw nothing more of the woman; then Dr. Dickenshied informed me that the lumbar sinus still persisted and occasionally there was considerable pus. I again made a careful examination of the patient. The sinus led into a sac which seemed attached to the right kidney, to the ascending colon, and to the abdominal walls. It did not extend as far as the liver above; the discharge was entirely colorless and seemed so thin and watery that I came to the conclusion that it had been a perinephritic abscess and that it had been caused by a renal calculus or inflammatory occlusion of the right ureter, and that it would be necessary to incise and perhaps entirely remove the right kidney in order to cure it. Accordingly I proposed another exploration, and removal of the kidney if necessary. Dr. Dickenshied agreed, and the woman and her husband decided to have the operation. About eighteen months after the first operation she again entered the hospital. I made an incision through the right lumbar region, using the sinus as a guide. After getting through the lumbar fascia I found that the sinus led almost directly inward toward the umbilical region, and shortly my exploring probe came upon a hard object, which proved to be a stone; this was at the bottom of the sinus and was reached by the probe without pushing it through the tissue and without any incision of the deep tissues; it simply lay in a small cavity at the bottom of the sinus. A little widening of the sinus by upper and lower incisions enabled me to pass in a pair of forceps, to grasp and remove the stone, which is, as you see, about the size of a pigeon's egg. Immediately upon the removal of the stone there was a discharge of bile from the depths of the sac. The stone had acted as a ball valve which effectually blocked up the opening that communicated with the ulcerated gall-bladder. The stone seems to have lodged in the folds of the mesocolon just above the cecum and was retained in a small cavity by a strong sac of investing fibrous tissue. The pus had burrowed through the mesocolon and had entered the renal fossa back of the parietal peritoneum. A tube was introduced after carefully washing out the sac. The woman made an uninterrupted and rapid recovery and the sinus soon closed permanently.

Case II.—Mrs. O., a widow, seventy years old. Three years ago she had typhoid fever; a year ago her present illness began. She had a violent attack of pain, vomiting, constipation and fever. Soon afterward a very sensitive swelling made its appearance in the right iliac region. Her physician thought she had an attack of appendicitis. Operation was postponed; the patient fell into a profound septicemic condition. The swell-

ing got lower and more superficial and finally the skin ruptured and a large quantity of thick pus was discharged through an opening just above Poupart's ligament. There had not been any jaundice during her last attack, but close questioning elicited the fact that three years ago when she had typhoid fever she had pain in the upper part of the abdomen and had been slightly jaundiced. After this she had been comparatively well until the severe illness a year ago. When she consulted me there was a wretched condition of affairs. The woman weighed only about 90 pounds, though she had a large frame; she was excessively weak, of a cachectic color, pulse weak but not rapid, 88 per minute; from her account evidently she had had evening fevers and sweats. Examination showed the skin of the whole lower zone of the abdomen undermined by pus; a large, ragged opening in the left iliac region communicated with a flat abscess cavity under the skin which extended from one anterior superior iliac spine entirely across the lower zone of the abdomen to the other iliac region; this opening also led by a long, tortuous sinus into the abdomen, following along the iliac planes upward and inward. Evidently it communicated with a large abscess cavity in the posterior inner part of the right abdomen. There was continuous dullness from the thorax to the base of the anterior superior spine of the ilium on the right side; this consolidation involved the whole right side of the abdomen. In my manipulations I evidently displaced some obstructing tissue (a slough), for, a short time after I withdrew the probe there was a discharge of bile from the opening. This had not been evident at all before; the pus had been quite colorless, though thick and very abundant. The appearance of the bile of course indicated the probable origin of the abscess. The woman was sent to St. Luke's Hospital, where under ether anesthesia, after thoroughly curetting the lining and walls of the external abscess in the anterior abdominal walls, and packing the cavity with iodoform gauze, an incision was made upward through the abdominal walls, using the sinus as a guide; the depth of the abscess was finally located to the right of the second lumbar vertebra under the coils of the small intestines and to the inside of the mesocolon. In a large mass of detritus and a quantity of pus two large stones were found which are each almost as large as a mandarin orange and aggregate 65 grams in weight. Besides these a number of small stones were found. When the stones were removed quite a copious discharge of bile followed. The cavity was so near the renal vessels and the ascending vena cava that very little curetting could be practised. The cavity was cleared out, however, as thoroughly as practicable, it was douched with a hot 1 per cent. saline solution, and a drain introduced.

The woman began to improve at once after the operation. The external abscess healed

rapidly, the deep internal one went very slowly. After a week, when it had very markedly contracted, there began to be a discharge of sour smelling fecal matter and a quantity of thin fluid which excoriated the surface of the skin. The feces came from the duodenum and the fluid was chiefly pancreatic fluid, as subsequent examinations showed. Notwithstanding this discharge the woman rapidly improved, took on flesh and her general well-being seemed almost entirely restored. The abscess cavity slowly contracted until apparently nothing was left but a small sinus, which discharged a small quantity of fecal matter daily and also some pancreatic juice. She remained in the hospital a little more than three months. She was then allowed to go home and ordered to report from time to time at the hospital.

The sinus remained and continued to discharge, but the old lady was in excellent health for about a year when, after some indiscretions in eating, she developed some intestinal obstruction symptoms and again entered the hospital. She seemed to be strong and well; she weighed 140 pounds, more than she ever did before in her life, and she said until the pain and distention of the abdomen and obstinate constipation appeared she was very well. Examination showed a small round opening at the junction of the right iliac and hypogastric regions; this led into a sinus which went upward to about the level of the second lumbar vertebra into the right side of the umbilical region. Very little discharge could make its way through the narrowed opening; the opening was enlarged and the sinus dilated. A free discharge of thin fecal matter and a clear fluid occurred. She was relieved at once, and after five days she was discharged in good condition and has remained so, as far as I know, up to the present time.

The question of whether or not it would be practicable to close the opening into the duodenum came up several times. I decided, however, that it would be best not to attempt it. The woman was seventy years old; she was comparatively comfortable, and though she did have a fecal fistula she could easily attend to it herself, and as the intestine was ulcerated so high up the odor of the feces was not very offensive. The excoriation of the skin by the pancreatic juice was the most annoying feature of the condition. Careful and systematic cleansing, and the free use of vaseline and subnitrate of bismuth powder over the skin immediately about the opening controlled this, however. The intestines were so matted together by adhesions that an attempt to reach the ulcer in the duodenal walls would have required a most tedious and perilous dissection and would undoubtedly have necessitated exsection of one or more lengths of the intestines, and the chance was that the woman would have been left in even a worse condition, *if she survived the operation*. I decided, therefore, not to attempt any closure of

the intestinal opening and to wait and see whether the opening might not finally close spontaneously. I think it has not closed, but the woman continues in good health.

The history of gall-stones has been so closely studied and so much has been written in late years concerning the immediate and remote effect of these pathological concretions that one hesitates to offer anything as absolutely new or original concerning them. I think, however, the possibilities as illustrated by the two cases I have related have not been clearly stated nor sufficiently emphasized. I venture, therefore, to call special attention to this rare condition in order to put on record my evidence of the fact that large gall-stones may ulcerate through the walls of an adherent gall-bladder and in a sort of glacial descent migrate to contiguous regions on the right side of the abdominal cavity. When these stones are small they are apt to find their way into the intestines, but when they are large they are retained in gradually descending abscess cavities formed by the adhesions of the intestines, the omentum, mesenteries and abdominal walls. These large abscesses are apt to be mistaken for other serious and, more common and better known, inflammatory conditions within the abdomen, and this fact should be remembered in differentiating suppurative conditions on the right side of the abdomen. In operating on abscesses deep down in the abdomen careful exploration should, if possible, be made of all the interstices of the sac in order to find out whether or not a wandering gall-stone is "at the bottom of it."

The sequence of pathological changes, as I understand them, is as follows:

(1) The development of the stones or stone in the gall-bladder. (2) An after-infection of the interior of the gall-bladder. (3) Suppuration and ulceration of the lining of the gall-bladder. (4) Coincident adhesions of the gall-bladder to the transverse colon, both omenta, and possibly to duodenum and mesocolon. (5) Perforation of the gall-bladder by extension of the ulceration; adhesions strong enough to resist the pressure of the escaping contents of the gall-bladder. (6) Encysting fibrous sac. (7) Gradual working downward of the abscess and contents.

Fortunately I am able to show you a gall-bladder which I exsected and which was just ready to be perforated and which was so firmly united to the transverse colon, etc., that I think the large stones it contained would have been retained in an abscess cavity and would soon have begun their career as wandering gall-stones.

A Munificent Gift to St. Francis Hospital.—Mrs. Greenhut, the wife of J. B. Greenhut, of the Siegel-Cooper firm, has just given fifty beds to this hospital. Some months ago one of Mrs. Greenhut's maids fell ill. She was so pleased with the care and attention they gave the maid that she desired to express her gratitude substantially.

CHRONIC RHEUMATISM.¹

BY CHARLES F. PAINTER, M.D.,
OF BOSTON, MASS.;

ASSISTANT PROFESSOR OF ORTHOPEDIC SURGERY, TUFTS MEDICAL SCHOOL; ORTHOPEDIC SURGEON TO THE CARNEY HOSPITAL.

THE present seems a favorable time to direct the attention of all branches of our profession, the surgical no less than the medical, to the general subject of this large group of diseases, which for years have been the bane of the practitioner. Several reasons have contributed to our failure to come to any satisfactory conclusions with reference to these conditions. First and foremost of these reasons I believe is the chronic character of the trouble. Very few of us have the time or the patience to persist in the study of any chronic disease, and if we had, it is more than likely that the individuals upon whom we sought to prosecute such studies would lose patience long before we did. Tired of experimenting with the "regulars," they are prone to fall into the hands of charlatans, and I do not know that we can much blame them.

The second reason, and one for which the profession can justly be held more culpable, is that we have not given these diseases the careful clinical study that should have long ago put us in a position where we should have been compelled to institute pathological investigation upon these subjects and philosophize on the results of our clinical and pathological observations.

A third reason is that pathologic material has not been available for the study of these processes when they were in the acute stages—not until comparatively recently have surgeons been getting an opportunity to look in upon these lesions when the characteristic changes were developing. Pathologic material disclosing the end results of these processes is often very similar in gross microscopic appearances, and should not be used as the basis of any conclusions regarding the etiology of the diseases in question.

Fourthly, in such researches as have been made, the pathologist and the clinician have not worked together. I venture to say that if the character of a malignant growth were under consideration on the operating table we should accept as most valuable the opinion of the pathologist who tempered his opinions by his own or some one's else knowledge of the clinical course of the tumor. This same attitude should be maintained (but never has been) with reference to the study by pathologists of the rheumatoid diseases, and the clinician should also better his attitude toward the pathologist.

These four factors have contributed more than anything else, I fancy, to the general confusion regarding nomenclature, etiology, clinical history, pathology, and, consequently, treatment and prognosis, which has existed in the medical profession not merely for years and decades, but for generations and centuries, and it is high time for

us to join forces and formulate the ideas based on our experience. It is not merely on humanitarian grounds that such effort should be based. It is our aim to relieve suffering, prolong life, and contribute, through our professional activities, to the general progress and well-being of mankind, and I submit that there is no better way of doing this than by preventing, as far as we may have the ability, the development of crippling deformities. By so doing we save to the family, in the first instance oftentimes, its mainstay, and prevent in many cases a tax being imposed upon the community at large. The money value alone of a deformity prevented cannot be computed. It is, therefore, from a wider point of view than is applicable in many of the more acute diseases that I would interest you in the subject of chronic joint affections.

The terms "rheumatoid arthritis," "osteo arthritis," "arthritis deformans," "rheumatic gout," and "chronic rheumatism" convey to your minds a clinical picture of pretty much the same general type, no matter where or when you received your medical education. In the main and briefly, whatever term is used it signifies to your mind a "chronic polyarthritis," which may vary more or less in severity, mode of onset and clinical course, but in which all types possess in common the tendency to progress more or less steadily toward one goal, namely, crutches, a wheel chair, bed or some other stage of a chronic, more or less incapacitating, invalidism. If this generally accepted view of the meaning of these terms implied, beyond any reasonable doubt, that the etiology was the same, no matter what the name, that clinical symptoms and pathologic findings were practically identical, irrespective of nomenclature, and that no other results than those now being obtained were to be expected under whatever treatment, I grant you it would be a waste of time to try and fit any more satisfying names to the symptom-complex which we have been in the habit of recognizing as "arthritis deformans." If any *one* term were to be chosen expressing the feature common to all types without reference to any pathologic grounds of classification, the best, I think, would be "arthritis deformans," although that, being a very unscientific method of classification, would be poor enough.

Let us approach the subject then with the view of classifying these diseases on the basis, (1) of their etiology, (2) their clinical history, and (3) their pathology. The classification which I shall offer has not a wholly satisfying nomenclature, and is in no sense original, but it is based on a consideration of the data obtained from a study of the etiology, clinical history, and pathology of a large number of cases, and, though doubtless erroneous in many points, will, I think, afford us a working hypothesis for further study.

Applying the above mentioned principles, this large group of morbid conditions divides into

¹ Read at the Annual Meeting of the Penn. State Medical Society, held at Scranton, September 28, 1905.

three, viz., the infectious, the atrophic, and the hypertrophic. I will take them up in this order; first, therefore, comes the *Infectious*.

Etiologically considered we must group under this head all cases in which there is a bacteriological cause for arthritic symptoms, demonstrable by cultural methods or inferred because of a close analogy with other arthritic infections whose bacteriological basis has been established. This class would necessarily include that entity which we recognize as "acute articular rheumatism," all the joint affections which are secondary to foci in other parts of the body or follow on systematic diseases whose causative factor is an organism—as the exanthemata, puerperal sepsis, and pneumonia. It will include gonorrhea and syphilis where the syphilitic infection is in the form of a gumma in the joint and does not manifest itself through the central nervous system, as in Charcot's disease, and it also includes a number of the milder joint infections, commonly monarticular, which give rise to a chronic synovitis. Purely for purposes of convenience tuberculous arthritides will be excluded from this classification.

At once this grouping is open to challenge on the ground that in but few of these conditions can bacteria be definitely demonstrated. It is very difficult to demonstrate organisms in these low grade joint inflammations unless the joints can be opened and the most painstaking bacteriological methods followed out. The lesions thus produced, however, are characteristic of bacterial infection, and even though it may be impossible to demonstrate bacteria by smears or in the tissues or by cultural methods, still there would seem to be no reasonable ground to doubt their participation in the production of lesions which are like those known to have been caused by bacteria.

There are enough points common to infections, bearing in mind the variations in their types, to enable us to classify tuberculosis, for instance, as it manifests itself in the joints, without the necessity of a bacteriological demonstration in every case, enabling us to say that such and such a combination of signs means tuberculosis, or means gonorrhea, or means streptococcus, or means some other member of the great family of bacteria, independent of whether we are able to aspirate the joints in question, or even open them and obtain from smears the specific organisms themselves.

What are the evidences which make the infection responsible for these chronic arthritic conditions? In the first place, most of them have a definitely acute onset. The majority of cases are polyarticular at the start, and whereas one joint may *seem* to be severely attacked at the onset, it will speedily clear up and others remote from it will be attacked with exaggerated rigor. All joints involved become so, *as a rule*, in a much shorter time than in the non-infectious types. Acute pain, local heat

and tenderness, constitutional disturbances, and fever characterize most of the infectious arthritides. Often the source of infection can be found if sought for diligently. Sometimes the gastro-intestinal tract, at other times the middle ear, or one of the acute febrile diseases will give one a clue upon which to work. The patients are anemic, their blood generally showing a secondary anemia, the red corpuscles not materially diminished, but their carrying capacity for hemoglobin much lessened. General glandular enlargements are seen much more frequently in this type of arthritis than in the others. A persistently high pulse rate of eighty to one hundred, with a degree or a degree and one-half of temperature, is the rule even when the chronic stage of the infectious processes is well established. Cardiac complications are more frequent in the arthritides of infectious origin than in any other form. The distribution of the lesions throughout the articulations of the hand, for example, is much more general than is noted in the atrophic type. There is not apt to be a variation in the intensity of the process in the various joints as evidenced by the external appearances. When one analyzes still further he finds certain fine differences in the gross appearances which are worthy of careful attention. In most of the infections the capsular thickening, which is visible as well as palpable, is very symmetrical. The skin over the joint is apt to be more or less passively congested. In this type of arthritis there is usually less variability in the activity of the disease in the various joints affected. The reflex atrophy which follows an infectious arthritis is much less than that which follows the arthritides involving the bone and cartilage. In the severer types of infectious arthritis the atrophy is very marked. These, however, are cases in which bone or cartilage, or both, are involved. The tendency toward deformity is also less; luxations and subluxations being very rare, flexions being the rule where any deformity occurs other than that due to infiltration of the capsule.

There are, of course, certain notable exceptions to the general array of facts set down above, the most conspicuous being those which occur in the low grade monarticular infections. They are to be explained, however, on the ground of the variations in the intensity of the infections and are dependent upon the variety of organisms which are acting.

From the pathological point of view cases can be studied in three ways, namely, by means of the X-ray, from the pathological findings at operation, or by the results of the bacteriologist's research. The results derived from the X-ray examination are extremely helpful if the negatives are developed so as to bring out the soft parts particularly. In this way the thickened capsule with its villous changes can be very distinctly demonstrated and the absence of lesions in the bone and cartilage can be well

shown. Occasionally, as has been intimated before, the osseous tissues are the subject of erosions, but only in the severe infections, the most notable ones which the writer has observed being caused by the pneumococcus.

Incision into the affected joints for the purpose of surgical exploration reveals a very dense synovial lining, sometimes as much as one-half to three-fourths of an inch in thickness. This is uniformly infiltrated and the infiltration will sometimes be found to extend to the fibrous capsule and cause the two to adhere so as to be scarcely distinguishable. Fibrinous clots are apt to form in the joints; erosions and striation and loss of sheen in the cartilage are not commonly noted; mobility is interfered with because of the loss in flexibility of the joint membranes; crepitation is not common in the acute stage.

Atrophic Arthritis.—In selecting this term to describe the group of cases herein outlined, an attempt has been made to choose a name descriptive of some characteristic clinical or pathologic feature of the arthritis. In this case it describes both a clinical and a pathologic feature.

This is a disease which is unquestionably constitutional in origin, though the chief signs are in the joints. It is distinctly polyarticular, is more common in women than in men, and is a disease of young adult life. It is decidedly a disease of wear and tear, either primarily physical, or mental, or both. The fretting cares of housekeeping, the exhaustion of repeated and rapid pregnancies, and the struggle against circumstances of all sorts among the poorer classes of women seems to render them susceptible to this disease. Also a very potent influence is severe emotional strain, as grief and fright. Both of these factors appear as the causative influence.

With the exception of Bannatyne's and Schüller's work in England and Germany, which has not stood the test, there has been no evidence cited which would indicate the finding of organisms at any stage of this disease. Repeated aspiration of the affected joints has failed to produce any evidence of a bacteriological character. The confusion existing as to the clinical types of chronic joint disease has not been taken into account by those reporting bacteria in the fluid obtained from these joints. That organisms may be, and have been, obtained from cases of polyarthritis, resembling the atrophic type, is granted, and that organisms thus obtained have produced in rabbits, guinea-pigs, etc., lesions similar to those in the joints whence they were obtained is well known, but clinically as well as pathologically these cases belonged to the infectious class. From the clinical standpoint atrophic arthritis can put in a good claim to being an entity.

The onset of the disease is insidious, beginning commonly in the small joints of the fingers, sparing the terminal row in most cases, and

expending its efforts on the second and third rows of phalangeal articulations. Rarely does it attack all these joints with equal severity and at the same time. The wrists are involved early, and of the larger joints the knees, ankles, elbows, and shoulders are seized in about that order of frequency. Rarely do the hips and spine become involved, a fact which is in rather striking contrast to the infectious form of arthritis, which frequently locates in the hip or spine. At the outset of the trouble there is rarely much or severe pain. Patients complain more of stiffness and lameness, then the gradual enlargement confined to the capsule of the joint and pretty definitely outlining the boundaries of the synovial membrane. On palpation these are thick, doughy, or porky in consistency, do not show elevation of temperature, and rarely contain an excess of fluid. The apparent synovitis will usually be shown to be the result of thickening of the synovial villi. The skin is apt to become parchment-like and shiny in the more advanced cases, and disturbances in the secretion of the sweat glands are shown oftentimes by the clammy perspiration which stands out on the surface of the palms of the hands and the soles of the feet, but this is not distinctive of atrophic arthritis.

Patients with this disease, and without other cause for it, do not show any secondary anemia. A considerable number examined gave evidence, on the contrary, of having a number of red corpuscles rather higher than normal, with a normal or high percentage of hemoglobin. There is rarely any fever, and the pulse rate is normal, both of which points help to separate this group from the preceding one. Glandular enlargements and cardiac complications are no more frequent than in a similar number of patients of the same age with any chronic troubles. Erosion of cartilage comes on in these cases in a majority of instances, and is evidenced usually by a painful stage, the development of deformity, and the restriction of motion. The characteristics of the deformities, other than the spindle swellings, are the luxations and the subluxations, due to the shrinking of the cartilage. These deformities are in marked contrast to the type occurring in the other varieties of arthritis being here considered and will be referred to under the proper head.

Pathologically, material obtained at operations upon this disease during its acute stage is constant in its characteristics. The changes noted are confined to the synovial membrane, the cartilages, and the bones, with some endarteritic changes in the vessels supplying these tissues. These latter are supposed by some to be merely compensatory to the disuse, but this hardly seems reasonable, as one does not see the same thing in joints equally incapacitated from functioning by the hypertrophic process. In the synovial membrane the conspicuous feature is the villous character of the thickening. The tips

of the villi are infiltrated with round cells, and the entire membrane is soft, velvety, and very vascular and friable. There is rarely any excess of fluid or inspissated fibrin found free in the cavity. The character of the infiltration is not the same as that seen in the infectious processes, where there is a great deal of round-celled infiltration throughout all layers of the synovial membrane and also some leucocytes and many epithelioid cells, but is principally of round cells and newly formed blood vessels, the walls of the latter, which exist in great excess, being the seat of endarteritic changes as the process advances. There are frequent evidences of metaplasia in this tissue, usually a reversion to a fibro-fatty tissue, but not rarely to bone and cartilage. In the cartilage an early loss of "sheen," which is characteristic of its healthy state, a tendency to striation in a longitudinal direction, and a decided general thinning of its whole surface, with here and there complete erosions, which are not accompanied by any surrounding inflammatory reaction, indicate the most distinctive features of the pathological changes.

In the bone there is a great variation in the structure of the cortical as well as the medullary portions. The individual trabeculae are not only smaller, but are less numerous and show less branching and intercommunication.

A study of the metabolism of these cases shows that while the disease is progressing calcium is excreted in the urine in amounts greatly in excess of the normal, and inasmuch as calcium is contained chiefly in bone, and this disease is associated with an appreciable histological loss of bone substance, it would seem as though the evidence at our disposal pointed to some disturbance in the body metabolism as the cause of this disease. We have studied the metabolism in the same case when the disease was active and progressing and when it had become arrested. When it was active, the calcium was excreted in great excess; when it was arrested, the customary balance had been restored.

The X-ray is of great assistance in the recognition of this type, for it enables one to distinguish the erosions of cartilage and its general thinning, features which do not occur in the other types of arthritis.

In passing, it may be well to state that the severer forms of infectious arthritis occasionally present isolated erosions surrounded by decided inflammatory exudates, but with no general thinning of the cartilage; the hypertrophic type sometimes shows a loss of substance, due to the cartilage being worn through by the action of overlapping spurs from the other side of the joint which have worn away the protecting cartilage. Atrophic arthritis, on the other hand, may seem to show hypertrophic changes, but these must be distinguished from the repair that Nature effects in certain patients, where she not

only checks the advance of the atrophy, but actually produces an overgrowth of cartilage about an erosion. In these doubtful cases one should be sure to weigh all evidence before coming to any conclusion.

Hypertrophic Arthritis.—Here again we have a form of arthritis, the name for which has been selected with a view to finding some term descriptive of clinical as well as pathological appearances.

Hypertrophic arthritis is, in the majority of cases, a disease of adult life, and usually of the more advanced adult life, and is more prevalent among men than among women. Among men, those who are subjected to the greatest degree of occupational traumatism and exposure to cold, wet and dampness, or sudden changes from heat to cold, and from moisture to dryness, are the most likely to be affected. To a certain extent also this holds among women. The lesions in men are most likely to manifest themselves in those parts of the body which are most exposed to the particular traumatism with which they are brought in contact by their occupation. For example, laboring men, those who work with pick and shovel, are most prone to have the trouble in the spine or the hips; on the other hand, in women, whose work is lighter and principally concerned with the hands, the lesions most frequently manifest themselves in the finger joints. When it occurs in people whose occupations are not manual, it is more frequently associated with some sort of physical traumatism than with the ordinary wear and tear of life, as has been shown to be the case with the atrophic type. There are cases, however, which come under observation where there seems to be no traumatism or climatic cause for the onset of the disease. Associated with its beginnings there are oftentimes digestive disturbances characterized by flatulence, constipation, etc., which seem to have some causal relation to the disturbances in the tissues of the joints. The predominant etiological influence, however, as has been above indicated, is exposure to cold and wet and the oft-repeated but slight traumatisms of adult occupations.

The evidences of this disease manifest themselves in various parts of the body, but taking all cases into consideration the small joints show the largest number of lesions. If, however, one excludes the articulations where the manifestations of the disease cause such slight trouble that patients do not seek treatment, probably the large joints more frequently cause serious disability, as, for example, the knees, the hips and the spine. The influence of traumatism in the production of lesions, however, is equally operative in the small and large joints. As has been indicated, women have Heberden's nodes more frequently than men, and have them in the terminal phalanges, because in their work this is the situation most subject to occupational traumatism.

It has been supposed by some that the pathologic changes in the bones in this disease were of the same nature as the atheromatous changes in the arterial system, but as arteriosclerosis is not frequently associated with these manifestations, there seems to be no evidence in favor of this view. In fact, Dr. Osler is an authority for the statement that manifestations of this disease are evidences of longevity. The profession has been rather tardy in the recognition of the fact that the manifestations of this condition are multifarious. One hears *morbus coxæ senilis* spoken of as a special disease, and Osler refers to Heberden's nodes as a special classification of chronic rheumatism. There is no question but that these conditions, as well as similar ones, manifested in other articulations, as the knee, elbow, etc., are representative of the same pathologic process, and the preponderance of evidence, derived both from the study of the pathologic changes in the disease and from observations which have been made upon the metabolism of the body, is indicative of its cause lying in some as yet ill-understood disturbance in the chemistry of the tissues.

The disease is insidious in its onset, usually attacking, as I have indicated in the discussion of the etiology, a few joints at a time, especially the ones which are most particularly concerned in the occupation pursued by the unfortunate subject. Sometimes there is no pain whatever associated with the manifestations of the lesions. This is particularly true in the case of the fingers, but I have seen the evidence of very marked hypertrophy of the head of the femur cause considerable limitation in the arc of motion in that joint long before the patient had his attention particularly attracted to the condition. Like some of the long standing cases of *coxa vara*, where no knowledge is possessed of the existence of the trouble until some joint strain attracts the patient's attention, so in this disease, the onset is so quiet that a very considerable degree of restriction in the possible motions of the joint may have taken place before any symptoms occur which draw the patient's attention. The symptoms which usually receive recognition on the part of a patient are pain or limitation in motion. In the fingers, a development of Heberden's nodes is oftentimes associated with only a slight prickling and painful sensation, particularly when the joints are inadvertently injured, and a stiffness on attempted motion, especially when the hands have been in a cramped position or unoccupied for long periods, as in sleep. There is no elevation of temperature and no essential change going on in the blood in this disease. There may or may not be digestive disturbances of the sort to which I have referred, but the patients very commonly will say that they have observed that constipation aggravates the discomfort in the various joints, and sometimes developments in new joints are associated with an aggravation of this condition. The urine is

apt to be scanty, of too high specific gravity, and is oftentimes carrying a greater amount of uric acid than is consistent with perfect metabolism. Further than this, I do not believe that the presence of the excess of uric acid can be regarded as having any relationship to the manifestations of this disease. It is simply another evidence of the disturbance in the body metabolism, and should be so regarded, and not as a disease in itself. Hypertrophic arthritis runs a fairly self-limited course. There seems to be, in some cases, a tendency to gradual extension of the disease from joint to joint, but such extension is usually confined to the smaller articulations. It is a matter of some interest, though of how much pathologic significance I am unable to say, that patients who manifest a considerable number of small joint involvements, as, for example, Heberden's nodes, are unlikely to have manifestations of the disease in the larger articulations. On the other hand, people with involvements of the large joints, as the hips or the knees, are unlikely to have Heberden's nodes. This, of course, is not a hard and fast rule, but as a general observation it will be found to hold true in the majority of instances. It would, therefore, look as though there were about so much of the products of disturbed metabolism produced by the average patient suffering from this disease which must be disposed of in some way, and that if local traumatism and conditions dependent upon slight injuries were directed to certain joints and not to others, the ones which were influenced by traumatism would develop signs of the disease to the extent to which it was necessary to take up the morbid elements which had been retained in the system. There is nothing, as I have already said, in this condition which tends, with anything like the certainty attending the development of atrophic arthritis, to progress to the complete crippling which one sees in that form of the disease.

In sharp distinction from the other two types of arthritis to which I have referred, this type has very few constitutional disturbances. The disease manifests itself almost wholly in the local damage which it does to the affected joints. The patients may have some indigestion and some disturbances of their functions, but are not made sick in the ordinary sense. The lesions are to a greater or less degree self-limited, and after they have become well established, give rise to no symptoms except mechanical ones. It is, therefore, a disease of much less severity than the other types to which I have referred.

From the point of view of the pathologist, the disease has not been as thoroughly studied as the other types which I have mentioned. This is because it does not as commonly require surgical interference, and thus the opportunity for pathologic investigation has been denied. Also in the case of patients who die suffering from the lesions of the disease, either they have died when the process was not acute, and thus an

opportunity for post-mortem investigation was not offered, or the arthritic manifestations were of so little interest to those who had an opportunity to study their post-mortem changes that they have neglected to do so. The material which has been available has been obtained principally from almshouses and dissecting rooms where, of course, only the end results of the disease were obtainable, and from which it was impossible to make any adequate study of the pathology of the process. The primary changes seem to be in the cartilage, and particularly in that portion of it where the bone shades into cartilage. In the cases where it has been possible to study the disease in the developmental stage, and there have been a few such, the characteristic feature has been a tremendously rapid overgrowth of cartilage, which presented no particular abnormalities except as to rapidity of growth. Eventually, this tissue becomes calcified and an ivory-like hardness ensues, which, when the change has occurred irregularly, causes limitation in the motion of the articulation affected. Sometimes this cartilaginous lip overhangs the adjoining bones to such an extent as practically to splint them. This is particularly notable in the knee- and hip-joints, and to some extent occasionally in the tarsus, and very frequently in the vertebral column. This process is commonly spoken of as "lipping." In cases where this lipping has produced relative fixation of the joint, but where a slight amount of motion is still preserved, one will oftentimes see deep grooves ground down into the cartilage beneath some of these osseous spurs. These have been regarded as erosions, and from their existence some confusion has arisen between the hypertrophic and the atrophic types of arthritis, but such confusion ought never to exist if the case is looked at as a whole.

Histologically, the bone and cartilage involved show none of the atrophy, nor do the blood vessels show entarteritic changes such as were noted in the atrophic arthritis. There are no essential differences from the histology of normal bone except for the fact that there is an excessive amount of bony tissue, which is of an ivory-like hardness. In the synovial structures there is practically never any villous change, unless occasionally a local one round some bony spur, but there is practically never any of the capsular induration which one sees in the atrophic and infectious forms of arthritis. There is rarely any synovitis occurring in the joints affected, unless spur formation has taken place to such an extent as to act as a local irritant to the synovial structures.

Treatment and Prognosis.—However interesting the studies upon the etiology and pathology of these forms of arthritis may be, unless they are productive of improvement in our treatment and enable us to foretell, with a reasonable degree of certainty, the behavior of lesions representative of these types of arthritis, our studies

avail nothing. It must be frankly admitted that up to the present time the lessons from these studies have not been rewarded with all that one could desire in these respects. On the other hand, it can be definitely stated with perfect sincerity that careful observation of patients suffering from these diseases will not only reward the practitioner with a better conception of the disease itself, thus enabling him to bring to his patients greater skill in the matter of treatment, but also will enable him to give a more satisfying prognosis as to the probable outcome.

The result of the studies thus far made have, therefore, put the medical profession in a position where greater advances will unquestionably follow. Certain conclusions can at once be drawn. For instance, granted that the differentiation into the three types which have been mentioned is justifiable on the ground of the etiology or clinical course of the disease and its pathologic changes, we can at once see how futile would be the customary treatment of these conditions by means of the salicylates without local treatment of any sort. It is true that some local treatment has been customarily given to patients suffering from these forms of arthritis, but even this has usually taken the form of the application of salicylic ointments combined with the application of heat. Where the objective signs and the course of the disease had been indicative of an infection of greater or less severity one could not reasonably expect very much in the way of the amelioration of symptoms from the application of such remedies. In the more acute stages, rest to the joint, secured by some form of fixation, together with such remedies as tend to allay the inflammation and relieve the attendant pain, are, of course, indicated. In planning and carrying out this line of treatment, however, it must be borne in mind that some of the infections have a greater tendency than others toward the production of interarticular adhesions, and, as a general principle, inasmuch as but few of these infections are suppurative, it is desirable to keep up fixative treatment for as short a time as is consistent with the relief of the more acute phases of the disease.

If one can eliminate *acute articular rheumatism*, as it is usually perfectly possible to do, from the more severe infections of a low grade type which sometimes resemble it in its clinical course, one can pretty readily satisfy himself as to when quiescent treatment should be stopped and some other form instituted. In the gonorrheal joints, for instance, which rarely suppurate, but in which the tendency is toward the production of a great deal of capsular thickening and the deposition within the joint itself of the products of inflammation, such as fibrin and serous exudate, and in which the joint capsule is being infiltrated with the products of this inflammation, and pain and local signs of infection are rapidly on the increase during the early stages of the infection, it is best to institute

radical measures, such as opening the joint through two lateral incisions and thoroughly washing it out with hot saline solution. It is then best to close it with interrupted sutures widely separated in order to permit of some leakage, but to try for a first intention, which is practically always secured. This method of treatment is to be advocated only when all the symptoms of the joint inflammation are evidently increasing steadily. If, after observation for a day or two of a freshly involved joint, it is evident that the local conditions are improving, then, of course, no surgical interference should be contemplated. If, on the other hand, the symptoms are being augmented each day, radical measures should be adopted.

Prof. Bier, of Bonn, has recently advocated the treatment of infectious conditions in joints, whether suppurative or non-suppurative, by means of passive congestion. Certainly the results which have been obtained by following out this treatment have been eminently satisfactory, particularly in the relief of the pain attendant upon these lesions. Whether the mobility of the joint is correspondingly improved is as yet a question. Of one thing, however, I am certain, and that is that the persistence of pain very materially interferes in the securing of motion, for as long as the joint is very sensitive, no patient will permit it to be manipulated, and the daily or almost daily administration of an anesthetic for the length of time that is necessary in these cases to secure motion is, of course, contra-indicated. It would seem, then, on theoretical grounds, that anything which speedily relieved pain would correspondingly freely secure motion.

If the cases of this sort are operative, early institution of manipulation should be adopted in order to secure the motion in the joints. It is rare for erosions to occur in the cartilage of sufficient extent to interfere with motion, and limitation of motion is commonly caused in these cases by the thickening which takes place in the capsule. In the average case which is severe enough to come to the open method, pretty complete restitution of motion can be expected if treatment is followed out consistently by the patient. This is, of course, very often hard to do because it is a painful procedure, and unless the individual is pretty "sandy," he is apt to lose his courage. Massage, passive congestion, local douching with hot and cold water—these are the methods which best favor the resorption of the infiltration. It is well to protect these joints by a removable splint, preferably of plaster of Paris, so arranged as to be easily removable during the more acute stages of the trouble.

Mechanical massage and manipulation, as accomplished by the Zander apparatus, is of much benefit in the after-treatment of the infectious cases, particularly when the joint sensitiveness has gone down enough to permit of motion. It

has the advantage of being so amenable to regulation that it does not irritate the joint nor produce an excessive amount of capsular infiltration. The apparatus is also of advantage in the atrophic type of arthritis, where there are no erosions in the cartilage. In the hypertrophic form it is of no benefit, and, in fact, might cause an aggravation of the symptoms.

I have selected the gonorrheal type of infection for the discussion here because of its frequency and because in cases of this severity it represents the procedure which will give the best results, whatever the type of infection. There are, of course, milder grades of infection than the gonorrheal, some of which are caused by such attenuated organisms that scarcely any trouble is to be noticed from them other than slight capsular thickening or a moderate degree of synovitis.

Investigations which have been carried on during the past year at the Carney Hospital Clinic, by Dr. Rhodes Fayerweather, have demonstrated that in these mild articular affections there are frequently organisms present situated in the subserous layers of the synovial membrane, and in small numbers in the fluid of the joint, which are capable of producing changes in the synovial membranes of the joints of animals when the organism is inoculated into them. It was repeatedly possible to obtain the original organism from rabbits successively inoculated, and to reproduce the lesions of the original human joint in other rabbits inoculated from them. It was not only possible to demonstrate the organisms in the fluid aspirated from these inoculated joints, but it was also possible, as it was in the original human subject, to demonstrate the organism in the synovial membrane of the patient and of the experimented animal itself. These seemed to belong to various groups of the family of bacteria, so that it is probable that various infective organisms, when they become sufficiently attenuated, are capable of producing very low grade lesions in one or two large joints, as is not infrequently observed. The effect of the presence of these organisms is usually to cause a villous arthritis, and the presence of this thickening of the joint capsule is sufficient to cause considerable disturbance within the articulation. The old-fashioned way used to be to inject these joints with carbolic acid or some other fluid which would produce an eschar and in this way destroy the bacteria *in situ*. It would seem, however, from the situation of the organisms, as demonstrated in the tissues by Fayerweather's work, that it would be impossible to reach them by a superficial joint inflammation, and, more than that, it seems likely that a good many of the symptoms which were produced by the presence of these organisms were produced in virtue of the villous thickening to which they gave rise within the articulation. Dissecting out these villi thoroughly and washing out the joint with saline

or antiseptic solutions in a manner similar to that which was described above, seems to be a very rational procedure, and it is certainly accompanied in most cases by very satisfactory immediate results.

The general polyarthritic affections belong, as far as treatment and prognosis are concerned, to a very different class from the cases which we have been just now considering. In this class of cases, general as well as local treatment is indicated, and if we would obtain the most desirable results some way must be established of destroying the organisms *in situ*. Recent investigations and clinical experience in the human being indicate that in certain sera we have at our disposal a method which is likely to be of value in the treatment of these polyarthritic conditions. Obviously, the greatest difficulty which lies in our path is that there are so many types of infection that it will be difficult to keep pace with them in the production of suitable sera. At present, Aronson's serum, which is a combination of the active principles as well as the organisms themselves, and has some thirteen strains of streptococci, has given the most satisfactory results. Inoculation should be started with about 100 units of Aronson's serum, increasing to the maximum dose, and should be made in the deep tissues, where it is less painful than directly underneath the skin. A sharp reaction, accompanied by malaise, fever and general aggravation of all joint symptoms, is to be expected, and this lasts for twenty-four to thirty-six or forty hours. A second injection should be given about two days later, and this should be followed up at about forty-eight to seventy-two-hour intervals for eight or ten days. Amelioration of the pain and lessening of the swelling are oftentimes noticed after the second or third inoculation. How permanent this is going to be it is impossible to say, but, theoretically, it seems the rational treatment, especially in view of the fact that it has been possible to demonstrate organisms in the synovial structures of joints affected with polyarticular inflammation.

Tonic treatment, however, must be maintained in all these cases. The general nutrition has always suffered, the composition of the blood has been rendered poor, and tonics and iron are always of benefit. It is noticeable, as has been pointed out, that patients are liable to show an elevation of pulse and a slight rise in temperature at evening, and so long as this condition persists not much can be done in the way of stirring up the joints with manipulation or massage, but after this stage has passed local stimulating treatment is indicated. Although as yet we are not in a position to promise much to sufferers from polyarticular infections, and it is wise to be guarded as to the prognosis, nevertheless the indications are that in a comparatively short time serum therapy will accomplish much for their relief.

The treatment of the atrophic forms of arthritis can be best divided into constitutional, mechanical, and operative. The constitutional treatment is to be directed principally toward the improvement of the patient's general nutrition. Because of the misapprehension which has existed with reference to diet in this form of disease, many physicians, believing in a restricted meat diet and an abstinence from carbohydrates, have cut out these elements of food, and, in consequence, their patients have suffered decidedly. This procedure has been entirely the result of misapprehension. In the light of the very imperfect knowledge which we now possess regarding the chemical processes which are concerned in the development of the atrophic and hypertrophic forms of arthritis, we are in no position to be dogmatic as to dietetics. The one thing that is obvious, however, is that if we can eliminate from the etiology of such conditions any infective organisms as an etiological factor there is no necessity for confining these patients to a diet which would be of benefit to a patient suffering from an infection, and there is no manner of doubt that many patients have been seriously damaged, or at least very materially retarded in their improvement, by the very zealous pursuit of a so-called "anti-rheumatic diet." In the infectious form, on the other hand, when it is in its most acute stage, there may be reason for restricting the patient's diet, but even here it should not be carried out so long as to impair the general nutrition, thus adding to the damage which has been done by the disease itself an element of malnutrition which is a serious handicap to the patient. A wholesome diet, implying the frequent administration of small amounts of nutritious food, will most speedily bring up the weight of the patient, and co-incidentally with this, he will be in better condition. It also enables the patient, I am very sure, to repair some of the damage which the atrophic changes have produced within his more severely affected articulations.

There are no specific drugs which are of avail in this disease. Although the salicylates and the iodides are notoriously ineffective, they have, nevertheless, been given in profusion, with the result that digestion has been impaired and patients have been put in a position where it was more difficult for them to contend with the disease, than it otherwise would have been. Where digestive disturbances exist in the atrophic and hypertrophic forms of arthritis they most certainly have some significance as to the cause of the arthritis. They occur with sufficient frequency to indicate very strongly a causal relation, and it has been the experience of those who have studied these disturbances most carefully that the patients who suffer from them have had their joint conditions materially benefited by attention to the constitutional disturbance. The relationship, however, of these digestive disturbances to the disturbances in

metabolism which are fundamental to the arthritis has yet to be worked out.

If mechanical treatment is indicated, it usually concerns the deformities which have followed contracture of the large joints, principally the knees and sometimes the feet. Such deformities in the knees are usually flexions and sometimes subluxations of the tibia upon the femur. At times these are of such a degree as to demand correction for the sake of enabling the patient to walk. Sometimes, when the degree of deformity is less, walking is possible, but with difficulty. The importance of the correction of deformities is twofold. In the first place it enables the patients, by securing capacity for locomotion, to avail themselves of conditions of outdoor life, exercise, and so on, which are of importance in combating the disease, and in the second place, the long continued malposition of a joint renders it less likely ever to be restored to proper function, so that if the disease is spontaneously arrested, the joints are left in a position sadly to their disadvantage. It is worth while to plan mechanical treatment for the joints of the locomotive apparatus more particularly than for the other articulations. The "caliper splint," so-called, a splint designed to prevent or correct, as the case may be, any flexion at the knee-joint, is an easily adjusted apparatus and one which is very simple to make. Where this is not possible, manual correction can be carried out under an anesthetic, if necessary, and a fixed plaster of Paris or removable leather splint adjusted, which will enable the patient to get about with less joint strain. Massage and gentle passive manipulations are of advantage in any stage, as the conditions of local nutrition are favorably influenced by attempts at normal function, whether these attempts be active on the part of the patient, or passive on the part of the attendant. Local stimulating hydrotherapy is of value to the joints themselves, and is also of benefit to the individual.

Operative interference, other than for the correction of the deformities above mentioned, is rarely indicated. Excision of the large joints in the more advanced cases does not give very satisfactory results. Union, where it is desirable, is difficult to obtain, and where undesirable, seems to be obtained with great ease. Occasionally the villous thickening which takes place in the capsule is so great as to cause pain in virtue of its presence as well as a considerable limitation in motion due to mechanical interference. Under such conditions, an arthrotomy with a view to removal of the villous fringes is permissible, and indeed is to be advocated. Manipulative measures to secure motion where there is no other reason indicated than the establishment of a better position are undesirable, as these joints with erosions within them are very unlikely to yield very satisfactory results to manipulation. If a reasonably satisfactory position exists in any joint affected by this form of

arthritis, even if the joint is partially or wholly ankylosed, it is much better to leave it alone than to attempt to secure motion in it. When the process has all quieted down and there is evidence of repair in the eroded areas within the articulation, then it would be permissible gently to manipulate, because it is likely that the prolonged fixation has stiffened up the capsule and possibly the limitation in motion may be partially due to restriction in the elasticity of the joint membranes.

The prognosis in the early cases of atrophic arthritis, where the patients can give up the time to absolute rest, to change of scene, where they can secure an abundance of wholesome, nutritious food, and can live outdoors is good. If they can treat themselves as though they were consumptives and protect the affected joints so that deformities will not develop, and can cause congestion and thickening of the synovial capsules to disappear, and prevent erosions in the cartilage from occurring, the disease can be arrested. If this stage is past and the patients have acquired marked deformities, there is not much that can be done and nothing should be promised. Prognosis should, therefore, be guarded in the cases where well established lesions with cartilaginous erosions exist. Where only the villous changes in the joints have taken place and the case is in its early stage much can be done, and it is the saving of these cases and the prevention of some of the crippling deformities which would otherwise result that makes it worth while to pursue the study of atrophic arthritis.

In a similar manner to that in which we have considered the treatment of atrophic arthritis, we should consider the treatment of hypertrophic arthritis. The constitutional treatment can very largely be put aside as unnecessary. The striking feature which stands out most conspicuously of all is the fact that the disease is one of imperfect elimination. Any tendency, therefore, to constipation should be combated by appropriate remedies, and of these, the continual, or at least long continued, use of the phosphate of soda in ten or fifteen grain doses in hot water before meals is perhaps the most efficacious which we have for the purpose. At any rate, this tendency should be combated preferably by saline drugs and the administration of large quantities of water. Recently a combination of the phosphate and benzoate of soda, combining the cathartic and diuretic effects which are extremely desirable in these diseases, has been put on the market, and it is rather more efficacious, I think, than the phosphate of soda alone.

Inasmuch as the skin is a medium for getting rid of the waste of the body to a very large extent, attention should be directed to this, and salt rubs, produced by dissolving a considerable bulk of salt in a small quantity of water and saturating a coarse towel with this at night,

wringing it out, and completing the drying by evaporation over night, will be found to have a beneficial effect and to render the emunctory function of the skin more satisfactory.

So far as the mechanical treatment is concerned, a diametrically opposite course should be pursued from that which was indicated in the atrophic form. In the acute stages these joints should not be stirred up, and in order to prevent the development of spurs and nodes about the joints in such situations as interfere with motion, the use of the joint affected should be restricted. A good rule to follow is to permit whatever motion is unaccompanied by pain, and by bandaging or splinting to prevent such motions in the affected joints as cause discomfort. Manipulations are contraindicated in practically all stages of this form of arthritis. It is much better to allow a considerable degree of deformity to exist until the disease has quieted down, and then, if necessary, to correct it by means of an osteotomy. This procedure is particularly applicable to the hip-joint. The extent of the lesions in the fingers can be materially affected by finger splints worn during the stage of development of the disease. Most patients, however, prefer to have a certain amount of deformity in the fingers, even though it is slightly greater than is necessary, rather than give up the function of the hands during treatment. In the elbow it is sometimes possible, by removing spurs, to improve the amount of motion in the joints. In the knees practically no benefit is to be obtained from attempts at removal of Heberden's nodes. Excision of the hip for the purpose of curing morbus coxae senilis is a procedure which, though it has been done a number of times, and occasionally with success, is hardly to be advocated. It is much better to protect, with a spica, for an indefinite time, hip-joints affected in this way than to attempt by surgery to relieve the condition.

The prognosis in hypertrophic arthritis is essentially better than it is in atrophic arthritis. Some of the double hip cases which have been allowed to go on unprotected get so deformed and so firmly ankylosed in a deformed position and are usually so stout that it is practically impossible to handle them in any way. Crutches, combined with some fairly pliable removable fixative apparatus for the lower back and the thighs gives perhaps the most satisfactory support.

These patients are apt to have a very troublesome time at night on account of getting into such constrained positions and not being able to move out of them. It is to this feature that most attention, oftentimes, has to be paid, and it is an extremely difficult one to handle as one is loath to give morphine in such cases, and no less of a drug is capable of producing any effect. Probably the most satisfactory method of managing this phase of the disease is by as complete a fixative bed of plaster or leather as is possible to arrange.

I hope that this discussion of these three types of arthritis will have brought to your attention some of the phases of the work which demand for their solution the concerted action of the profession. If such a purpose has been accomplished, I am sure that great satisfaction will come to all of us and much benefit will accrue to a class of sufferers whose ills have been too long neglected.

TREATMENT OF LOBAR PNEUMONIA.¹

BY ALBERT KOHN, M.D.,

OF NEW YORK;

ADJUNCT ATTENDING PHYSICIAN TO THE MT. SINAI HOSPITAL; ADJUNCT PROFESSOR OF MEDICINE AT NEW YORK POLICLINIC.

AFTER years of experiment, the search for a specific in lobar pneumonia has resulted in a vast number of forms of treatment, as varied as they have been disappointing. As each new therapeutic measure was advanced, with its array of statistics, distorted and molded so as to decrease the mortality to an occasional death, it was grasped at, used indiscriminately as the accepted method and then slowly died the death of its predecessors, only to be succeeded by a still greater disappointment. So from Hippocrates down we pass through the reigns of venesection, tartar emetic, veratrine, pilocarpine, digitalis, cold baths, quinine and creosote, each one for a time having sway, each one meeting with strong opposition, and each in turn abandoned, proven either useless or decidedly harmful.

All this work has, however, not been wasted; for, in a negative way it has exposed many pitfalls that are to be avoided. Again, in spite of all that might be brought against these special forms of treatment, it is interesting to note how even to-day their shadows still haunt the profession, and how each and every one of them is tried here and there in the vain hope of changing all that has gone before. Perhaps the most remarkable is venesection. Dietl dealt this form of treatment a severe blow and from him dates its abandonment; and yet, at this very moment it is being used, fortunately not often, at all stages of the disease, without discrimination, without regard to heart or arteries—the only thought being venesection.

Finally, with the theories of immunity, the work on toxins and antitoxins, our hopes were again raised, and after the miraculous work in diphtheria it seemed as though at last we were about to have a specific; but here again, all has been failure, though nearer now than ever before to the scientific principles which may some day give us the true remedy.

Symptomatic treatment is all that is now left us, its method being that it has no method, and makes the judgment of the physician the test of success or failure. He must discriminate between cases; must recognize a case that runs a mild, self-limited course from one in which he

¹ Read as part of a symposium on Lobar Pneumonia, at Eastern Medical Society, January 13, 1905.

must strain every nerve; must distinguish between a severe sepsis and a slight poisoning; a good heart and a poor heart; a sthenic and an asthenic form. The physician must use his judgment when not to interfere, where his case goes to a good end without a grain of any drug. He must be fearless where his case demands; and by this I mean that numbers in text-books are no guide to dosage, but that in this disease above all others the physiological effect makes the dose, whether this be small or large.

Let us start with the hygiene of the patient. The room of a patient suffering from pneumonia must be one that can be well aired and in which the sunlight is plentiful. The heating should not be by methods which in themselves use up the oxygen.

The bed is of paramount importance. A soft, old-fashioned, wide bed will in a very few hours find the patient sagged in a cavity, uncomfortable and unmanageable, without giving the least freedom of movement to the chest. The bed should be hard and narrow, so that the nurse may work from either side and have the patient under full control. If possible, a second bed like the first should be near, so that the patient may be slid over during the renovation of the first.

The nurse must be trained, and relieved at least every twelve hours. The necessity for constant watching of temperature, pulse and sudden changes in the patient, with the possible call for emergency work, makes the case absolutely a hospital case, if such nursing cannot be obtained, and we wish to exercise ordinary care in the management.

Whenever possible the administration of drugs should be by the hypodermic method. In this way we use exact dosage and know that the drugs are absorbed. Stomach medication in a patient with high temperature, septic, and with distention of the gastro-intestinal tract, affords but a poor and unreliable way of entering drugs and should never be used where indications are urgent, and only when the nature and quantities of the drug make hypodermic administration impossible.

During the course of the disease and when awake, the patient should have his position very carefully changed at frequent intervals in order to equalize circulation in the lungs. Especially is this of importance in the aged.

External applications, such as flaxseed poultices, mustard plasters and the like, have justly fallen into disuse. They accomplish no purpose except that of impeding the free play of the chest and causing discomfort to the patient. A cold compress about the chest may be used for antipyretic purposes, but its too frequent changing is not advisable.

Oxygen is at the present time in pretty general use. Its efficacy is a mooted question; but in sudden collapse, dyspnea and cyanotic states its administration is of the greatest importance. The ordinary tip can be replaced to great ad-

vantage by a glass funnel which allows a free flow to both nose and mouth, and may be pinned to the bedding by means of a safety pin.

Bowels.—At the onset of the disease, calomel in divided small doses, followed by a saline, is of undoubted value; after this, enemata should be relied upon entirely. The enema should contain peppermint water, or, if the kidneys are sound, occasionally oil of turpentine. This will prevent undue distention, which may, however, demand a second enema during the twenty-four hours with the application of hot turpentine stupes to the abdomen. The high enema with the rectal tube is preferable, provided the patient be not one of that class hypersensitive to such procedures.

Temperature.—The temperature is to be reduced where not well borne. The modern opinion is that temperature favors the production of antibodies, and as such may be considered a normal phenomenon. High temperature, however, is badly borne by many patients, and the question of an antipyretic arises. Large doses of the coal-tar products are unquestionably bad; but the pendulum has swung too far in this regard, and when cold spongings are not practical or not efficient, small doses of the coal-tar antipyretics may be used with perfect safety, preferably combined with a small amount of caffeine. Hydrotherapy which mauls and pulls the patient about is harmful. Van Jürgenson in using cold baths has no fear for the heart. He explains the action upon the principle of peripheral contraction, the pouring of blood toward the center, and, through the agency of the coronaries, increased muscle activity. This argument leaves entirely out of consideration the fact that the heart is not so much influenced by the temperature as by the intoxication. The condition is in no sense parallel to typhoid, where the nervous system is so well influenced by the Brand treatment, but in which the heart is not embarrassed on the one hand by toxemia and on the other by a mechanical obstruction.

Delirium.—The delirium in this disease, occurring both at the commencement and at the end, is of the active type in most cases and necessitates the greatest watchfulness, as these patients may leave the bed and try to get out of windows. This delirium may cause loss of sleep to such an extent that a harmful condition may result. Morphine in small doses is recognized as the best method of controlling it and procuring sleep. The chief danger of morphine lies in its use in large doses and in edematous conditions of the lungs. Hypnotics are followed too often by undesirable effects, especially headaches. If any choice is to be had, however, perhaps chloral serves the best purpose. Bromides have been extensively used and are recognized as perfectly safe, but prompt and active medication is so often indicated that some more rapid method is necessary. Morphine guardedly used serves every purpose.

Diet.—The diet of the patient must be carefully managed. The state of the abdomen is, to my mind, second in importance only to the state of the heart. The distended abdomen is invariably a source of danger and shows at once a vasomotor paralysis of the intestines, with or without the gaseous product of decomposition. It means not only poor intestinal absorption, but mechanically makes upward pressure on the intrathoracic organs. Feeding must be so managed as to avoid such distention as far as possible. Pneumonia has generally been looked upon as a disease that must be fed up at all hazards, and this is often done to the detriment of the patient. The disease is one which lasts a comparatively short time and overfeeding serves no purpose. Milk is the agent mostly relied upon. When we consider the large percentage of healthy individuals who never take milk in its pure state and the great number with whom milk positively disagrees, we must hesitate before ordering this form of feeding in pneumonia or any other acute febrile condition in which surely the milk cannot be as well tolerated as in the normal state. We have no desire to condemn this food to complete exclusion, but its use must be judiciously managed by giving in small quantities diluted with cereal waters such as barley water, and, by attention to the stools, follow its digestion; if invariably followed by flatulence and belching, it should be dispensed with entirely. The customary dilution with a carbonated water is not to be advised. Where pure milk can be readily digested, the addition of small amounts of coffee or cocoa will frequently keep the patient from rebelling against the monotony of the milk diet. Beef tea is readily taken by most patients. The addition of eggs will make up for the criticism that it is a stimulant and not a food. The various broths, mutton, chicken, etc.; the jellies, corn starch, porridges, custards, juices of fruits, stewed fruits in very small quantities may be so administered as to carry the patient easily over the crisis when the more solid food will be indicated.

Water.—A happy mean must be maintained. Its administration should be ordered by the physician, both as to time and quantity, and not omitted from the nurse's orders. Its administration may be abused, as large quantities at a time may paralyze absorption so that it will really act as an irritant. It should be given in relatively small quantities but frequently, so as to produce a continuous flushing of the system of its poisons, both by kidney and skin elimination. Any water containing carbonic acid is to be avoided. Hypodermoclysis or the use of hot saline solution subcutaneously, a pint two or three times a day, has been strongly recommended by many, including Osler. Such water may be also given per rectum.

Heart.—In the care of the heart we must consider old heart lesions, acute infectious degeneration, and finally, mechanical dilatation of the

right ventricle. In the first, old heart lesions, the use of digitalis at the onset is strongly recommended by Aufrecht, not, however, in the large doses that have been the subject of so much discussion by Petresco, Barth, Fickl and others, on the one hand, and Gerhardt, Van Jürgenson, and others, on the other. A. Fraenkel, while using the large doses where he saw the patient within the first three days of the illness, makes such limitations as organic heart disease, disease of blood vessels, arteriosclerosis, kidney disease, fifty years of age or over, and the alcoholic habit, and also keeps track of blood pressure with Gärtner's tonometer. Traube also makes note of the different effects when used at the beginning and end of the disease, and says that one gram at the end may cause positive slowing and irregularity of the pulse. Leyden, in perhaps the latest work on the subject, refuses to recognize the large doses and claims the indication for small doses to be a weak pulse either before or after the crisis. Surely, on theoretical grounds we can hardly understand why this method of large doses of digitalis should have been hailed as a specific. The fact that the low tension seen in asthenic pneumonia may be counteracted is no proof that the disease can in this way be controlled for the good of the patient, and when the dangers of a fatal collapse, as described by Aufrecht, stare us in the face, our small and less heroic dosing, when indicated, offers as much as we can expect from digitalis.

Alcohol is a drug we must place great reliance on, acting as a valuable heart tonic, as a food, and saving tissue oxidation. The best proof of its efficiency is the easy manner in which it is borne by pneumonia patients. Champagne is, in my opinion, positively contraindicated; the distention caused by it would at once negative any good qualities. Whisky alternated with sherry furnishes the most easily tolerated as well as the most pleasant method of using alcohol. The pride with which many boast of the number of bottles of champagne or whisky consumed in the cure of their pneumonia is but another proof of a therapy blindly groping in the dark regions of specific without regard to the ultimate depression that may be caused by overdosing with alcohol.

The next routine drug is strychnine. Whatever may be said theoretically, no one with enough experience can doubt its efficacy in a weak and flagging heart. Its use must be hypodermic, and when the heart is wearing itself out, must be pushed to the physiological limit. When further medication is needed camphor and oil furnishes a splendid diffusible stimulant. Sodibenzoate of caffeine is excellent, but must be guardedly given where there is delirium or restlessness. By stomach we may give ether and ammonia combinations as diffusible, rapidly acting stimulants.

Our right heart must now be constantly under observation. A weakened second pulmonic

sound together with a distention of the right ventricle, accompanied by cyanosis or beginning edema are just and legitimate indications for opening a vein and the removal from the engorged right side of eight or ten ounces of blood, provided the heart be not in too weak a condition.

In pulmonary edema wet cups are strongly indicated; such may be easily applied by means of glasses over scarifications made with a sharp scalpel. At this point the free use of oxygen is of the greatest value.

The combination of atropine and strychnine, with the addition of a small dose of nitroglycerin, all in one hypodermic, is an effective remedy; to this may be added the fluid extract of digitalis, if this drug has been reserved, given hypodermically. In spite of physiological effects from all these drugs, necessitating their use in a restricted manner, we may desire still another stimulant for a very poorly acting heart. I cannot too highly recommend the tincture of musk, a drug which has fallen into disuse from its expense, but to which I lay the turn of the tide in many a severe case. Expectorants should be chosen with due regard for those likely to depress; among the most useful will be found the German liquor ammonia anisata.

Of the drugs used for the disease in general perhaps the best class is that consisting of the salicylates and aspirin. The ergot treatment is too new to say very much about.

The above condensed sketch does not in any way pretend to cover all the points that may arise in the care of pneumonia. In conclusion, however, I would say that while many cases go to a cure without medication, there exists no condition which in its results is more grateful to judicious management. Overwhelming toxemia may make all efforts useless and carry away our patient in spite of any treatment; but constant vigil and bedside watching, the use of the proper drug at the proper time, will tide over many a patient who would otherwise be doomed.

122 East Fifty-eighth Street.

Report on a Series of Experiments to Determine the Antitoxic Depreciation of Antidiphtheric Serum.

—L. C. LAYSON (*Am. Med.*, Oct. 28, 1905) bases his article on a laboratory study of antidiphtheric serum representing the stock from which the market had been supplied, together with samples returned from the market, all kept under the varying conditions encountered by field antitoxin. He concludes that the antitoxic value of antidiphtheric serum is retained much longer than has hitherto been believed. The majority of diphtheric serums retain their antitoxic potency unimpaired or but slightly diminished for two, three, four or even five years, and that the maximum depreciation of the occasional serum does not exceed 33⅓ per cent., which contingency is guarded against in the practice prevalent with American mercantile antitoxin establishments of adding an excess of serum sufficient to cover the loss sustained by the occasional sample.

A CLINICAL AND BACTERIOLOGICAL STUDY OF THE COMMUNICABILITY OF CEREBROSPINAL MENINGITIS AND THE PROBABLE SOURCE OF CONTAGION.

Part I of an Investigation of Cerebrospinal Meningitis Carried Out Under the Auspices of the Special Commission¹ of the Department of Health of New York City.

BY CHARLES BOLDUAN, M.D.,

AND

MARY E. GOODWIN, M.D.,

OF NEW YORK;

ASSISTANT BACTERIOLOGISTS, RESEARCH LABORATORY.

(From the Research Laboratory of the Department of Health, Dr. William H. Park, Director.)

EPIDEMIC cerebrospinal meningitis, so far as history is concerned, seems not to have been clearly observed prior to 1800. In the histories of the great epidemics of Europe, from the thirteenth century on, symptoms are described which almost certainly point to this disease. An interesting account of these early epidemics is given by Webber.¹ Since 1800 the disease has appeared in four large epidemic periods. Hirsch² divides these periods as follows: the first, from 1805 to 1830, shows the disease more general in the United States, though there are also isolated epidemics in various places in Europe. In the second period, from 1837 to 1850, meningitis became prevalent in widespread epidemics in France, Italy, Algeria, the United States and Denmark. During the third period, from 1854 to 1875, the malady reached its widest diffusion throughout most of Europe, the adjoining countries of nearer Asia, the United States and some parts of Africa and South America. The fourth period, from 1876 to the present time, is a return to merely casual epidemic outbreaks or to more or less considerable groups of cases here and there within its former limits. It is to be noted, however, that during this period there is not a year wholly free from epidemics in some part of the world.

These four periods have been critically examined by Jaeger,³ who calls attention to the fact that the interval between the periods is growing shorter thus—seven, four and one year respectively—and that as our knowledge of the disease is becoming more definite and the cases are more carefully reported, one finds that epidemics of this disease have never entirely died out. Since the spontaneous origin of living disease germs is out of the question, Jaeger believes that such long intervals as that of seven years between the first and second period can only be explained “either by assuming that the virus has extraordinary powers of life outside the body, or that the virus is kept alive by being transmitted from one individual

¹ Commission for the Investigation of Cerebrospinal Meningitis: William M. Polk, M.D.; Walter B. James, M.D.; Simon Flexner, M.D.; Edward K. Dunham, M.D.; William P. Northrup, M.D.; William K. Draper, M.D.; Joshua Van Cott, M.D.; W. J. Elser, M.D., in conjunction with Thomas Darlington, M.D., President, and Hermann M. Biggs, M.D., General Medical Officer.

to another *without giving rise to epidemics.*" The former possibility may be dismissed, for practically all authorities agree that the organism certainly does not possess very great powers of resistance. In fact, most authorities have found it to possess but little vitality. We must, therefore, look upon the sporadic cases as some of the connecting links between the epidemics and must also seek for the organism in individuals who are not infected.

Geographical and Seasonal Distribution.—A careful study of the geographical distribution shows that the disease occurs mostly in the north temperate zone, although it has been observed as high north as Iceland and as far south as Java. Of 182 European epidemics, 24 were in October and November, 46 in May, 24 in June and July, 10 in August and September. In Sweden, of 417 local outbreaks, 311 were in winter and 106 in summer.⁴ Of 85 epidemics in the United States, 37 occurred in winter, 18 in winter and spring, and 23 in spring.² The disease has occurred in perfectly mild winters, such as those at Metz in 1839-40, in Italy in 1839-40 and 1840-41 in Indiana in 1862-63 and in Kentucky in 1866. Some epidemics in fact have not shown themselves until summer, as at Bordeaux in 1839, Toulouse in 1842, Dublin in 1850 and Cracow in 1874. When meningitis was epidemic in Asia Minor in 1868-70 it came to an end in Magnesia just when severe cold set in; but it showed itself at Smyrna in the spring under very high temperature.

Etiology.—It is now generally conceded that the etiological factor in most of the cases of epidemic cerebrospinal meningitis is the diplococcus described by Weichselbaum⁵ in 1887, and now commonly called the meningococcus. Marchal⁶ analyzed 513 cases of cerebrospinal meningitis. He divides the cases into primary sporadic and epidemic cases. In the former there were 95 cases, of which 48 showed the meningococcus, 40 the pneumococcus, and 7 various other organisms. Among the second class of cases, 418 in number, 307 (73 per cent.) were associated with the meningococcus, 67 (16 per cent.) with the pneumococcus, and 44 (10 per cent.) with various other bacteria. Schottmüller⁷ examined 49 cases, finding the meningococcus of Weichselbaum 43 times. In three of the cases there was mixed infection, once with tubercle bacillus, once with pneumococcus and once with *Streptococcus mucosus*.

In the literature of meningitis, especially shortly after the discovery of the organism and before bacteriological diagnosis had been very much developed, a number of instances are recorded in which epidemics of cerebrospinal meningitis were observed in which the infecting micro-organism was other than the meningococcus. Some of these appear to have been epidemics of pneumococcus meningitis (Panienski,⁸ Quadu,⁹ Weichselbaum, cited in Schottmüller⁷). In others the statements of the authors are so

conflicting that one hesitates to accept them (Bonome¹⁰). It must always be remembered that cases of pneumococcus and of streptococcus meningitis are fairly common, and that they will, naturally, occur also during an epidemic of meningococcus meningitis.

As said above, however, there is no doubt that the large majority of cases of epidemic cerebrospinal meningitis are associated with the meningococcus.

In an excellent study of 119 cases of cerebrospinal meningitis which occurred in Boston Councilman¹¹ says that "in a question of the probability of transmission of an infectious disease we should consider the location of the disease and the ways in which the organism causing it can pass from the lesions of the disease to the outside; further, the viability of the organisms and the possibility of their leading a saprophytic existence."

Occurrence of the Meningococcus.—It is unnecessary here to go into the occurrence of the meningococcus in the meningeal exudate and in the fluid obtained by lumbar puncture. So far as the epidemiology of the disease is concerned, this localization of the organism in the interior of the skull and spinal canal is without special interest.

Councilman found Gram-negative diplococci in the nasal secretion of a number of patients suffering from meningitis. These organisms were not, however, isolated in pure culture and further identified. The same author isolated one culture from the tonsils of a patient with cerebrospinal meningitis, and this proved to be a true meningococcus. Schiff¹² examined the nasal secretion of 27 healthy persons, finding an intracellular diplococcus in 7. Of these 7, 3 were identified as meningococci by Weichselbaum. Kiefer,¹³ while working with a culture of meningococcus, was seized with a coryza. He thereupon succeeded in isolating a meningococcus from his nasal secretion. Lord¹⁴ also demonstrated the organism in the nasal secretion of a patient which he examined. Albrecht and Ghon¹⁵ isolated the meningococcus from the nasal secretion of a patient with cerebrospinal meningitis and from that of a person in contact with such a patient. Weichselbaum and Ghon¹⁶ isolated the organism from the nasal secretion of one patient with cerebrospinal meningitis and from that of three persons in contact with cerebrospinal meningitis. Griffon and Gandy¹⁷ succeeded in isolating the meningococcus twice from one patient with cerebrospinal meningitis, an interval of five days elapsing between the two times. Our own results along these lines will be found at the end of this paper.

A number of observers have succeeded in isolating the meningococcus from the blood by means of cultures (Solomon,¹⁸ Moller,¹⁹ Bettencourt and Franc,²⁰ Elser²¹). The last-named author examined 41 cases and succeeded in isolating the meningococcus from blood cultures

in 10. He found that the occurrence of the organism in the blood was extremely irregular; sometimes the organism was present at the beginning of the illness; sometimes at the end. He found no relation between the presence of the organism in the blood and the severity of the disease.

Weichselbaum has recently published a case in which the meningococcus was found in the lesions of an ulcerative endocarditis. Drigalski,⁵¹ in one case, found it in the herpetic vesicles.

The above are practically all the observations on the occurrence of the meningococcus elsewhere than in the meninges of the brain and cord. An observation on the occurrence of the meningococcus in the dust of infected barracks can be dismissed as absolutely unreliable.

Viability of the Meningococcus.—There are but few statements as to the viability of the meningococcus. Jaeger²² states that he observed that some meningococci which had been dried in pus were still visible after 127 days. On the other hand, Councilman says that so far as he was able to tell from its behavior in culture media and in the tissues, "the meningococcus has a feeble vitality and would not be capable of leading a saprophytic existence. It must of course be remembered that in experiments to determine this viability, we cannot reproduce artificially all the conditions which the organisms find in nature." Bettencourt and França²⁰ made a number of experiments with cultures of meningococci. It was found that cultures dried on glass at various temperatures, 37°, 24°, 19° C., had lost their vitality at the end of twenty-four hours. In many cases they were already dead at the end of three hours. Cultures exposed to direct sunlight where the thermometer registered 35° to 37° C. were dead at the end of two hours. Weichselbaum²³ also regards the meningococcus as having but feeble powers of resistance, and this opinion is shared by almost all the best workers.

TRANSMISSION OF THE DISEASE. Influence of Close Contact.—That infection goes hand-in-hand with close contact between persons is shown, for example, by the following references: Frothingham²⁴ describes a small epidemic which broke out in *one* regiment of the Army of the Potomac. The soil was clay, weather mild and damp. The soldiers were crowded together, five to six men in a small tent. Conditions were such that remittent, intermittent and typhoid fever abounded. Nevertheless the cases of meningitis observed occurred only in *one* regiment, and this had by no means the worst quarters. Gifford²⁵ reports five cases of meningitis occurring in one family, one after another, within a week. He was unable to trace the cause of the outbreak. Hammer²⁶ in a discussion, remarked that in 1843 he had seen an epidemic in Mannheim, Germany. The garrison there consisted of 800 men, and the city contained 30,000 people. Yet no one was affected

excepting the military. In two months about 50 cases had occurred, of which 11 were fatal. A few years previously a similar epidemic occurred in Strasbourg, also confined to the barracks. Corbin²⁷ describes an epidemic among the soldiers at Orleans in 1847-48. The townspeople were not affected. Jourdes²⁸ says the disease raged among the troops in Strasbourg for four months before it broke out among the townspeople. Here it occurred in 52 streets, but raged particularly in narrow, crooked streets where many people were crowded together. Mayne²⁹ observed epidemics which occurred in various workhouses and hospitals. Gahlberg³⁰ remarks that certain streets are markedly affected. In one street there were 9 cases, in another four and in a third 6 cases. Those in the last-mentioned street were practically in neighboring houses. Most of his patients were robust. The cases extended from February to May. Ziemssen³¹ believes that conditions of soil are without any influence on the spread of the disease, and that the weather is also no factor. In general his cases belonged to those living in unhygienic surroundings. Only 5 (out of 42) belonged to the upper class. Most of the rest lived in poorly ventilated, damp dwellings and on the ground floor. But these conditions he says had existed a long time prior to the epidemic and can therefore be regarded only as auxiliary factors. Twice a house infection was observed; in one instance, to be sure, confined to two sisters. The other embraced four persons, who became sick in the course of two weeks. Three of these died. Jaeger³ says that an important factor in the spread of the disease is the rapid accumulation of people in cities and towns and a development of sanitary conditions of the dwellings which does not keep pace with this accumulation.

In the present epidemic in New York City, both last year and this, the disease has affected chiefly the people living in the densely populated sections, the lower East Side, or "Ghetto," the lower West Side, and the "Little Italy" section in the vicinity of One Hundred and Tenth Street and East River.

Influence of Age.—So far as the influence of age on the prevalence of infection is concerned, the following statistics may be of interest. Hirsch² has collected the histories of 1,267 fatal cases occurring in Sweden from 1855 to 1860. Of these, 889 patients were under fifteen years, 328 between sixteen and forty years, and only 50 were over forty. In an epidemic in Bromberg, Germany, of 141 cases, 132 were between two and seven. In an epidemic in Thuringia, out of 180 cases, 160 were under twenty years. Leaving out of account the epidemics among soldiers, epidemics have also been reported in which the cases were mostly in persons between twenty and thirty years of age. Such was the case, for example, in the Italian epidemics in the forties, and in the epidemic in Montgomery, Ala-

bama. In the latter, of 84 patients, 10 were under ten years of age; 23 between ten and twenty; 27 between twenty and thirty; 13 between thirty and forty; 12 over forty years of age.

In an epidemic of cerebrospinal meningitis in Dantzig, Germany, there were 779 deaths. Of these, more than 25 were of children under one year; 88 per cent. were under ten years. In the epidemic in Cologne in 1885-1892 the majority of patients were between fifteen and twenty-five years.

We see from this that the disease at one time affects mostly infants, at other times older children, and at still other times adults. What the reason for this is does not seem at all clear.

Other Predisposing Factors.—A number of writers lay stress on slight trauma as a predisposing cause and state that in many cases a history could be obtained of some injury to the head shortly before the onset of the disease. In our series of cases it was the exception to obtain such a history, although inquiries were always made. When it is remembered that children are constantly receiving all sorts of knocks it will not be surprising if now and then the disease will be found to have been preceded by some slight trauma. But that this is of any influence in determining the infection has nowhere been proved.

Some of the writers on meningitis mention the occurrence of a coryza or a sore throat just before the onset of the disease (Berdach³²).

Influence of Overexertion.—Huebner³³ says that one of the factors predisposing to the disease is marked bodily, and perhaps, also, mental exertion. This was shown particularly in the military epidemics in France, where it was found that raw recruits unused to hard service were especially susceptible. That the latter statement, at least, is correct seems borne out by statistics from other sources. In the epidemics among the Wurtemberg troops in 1898, Jaeger³ found that out of 56 cases, 43 were among the troops of the first year of service, 11 of the second year, and 2 of the third year. But this does not show that it is due to overexertion. If that were the case we should expect far more cases in war than in times of peace, and yet, as we know, cerebrospinal meningitis is not a disease of war. Jaeger also points out that the physical exertion required of the soldiers is carefully graded so that the recruits are only gradually put to hard work.

Virulence of the Meningococcus.—It is possible that a given strain of meningococcus can in some way acquire an increased virulence and so start an epidemic. Since, however, this organism is so slightly virulent for ordinary test animals, we have no way of determining this except by studying the development of the various epidemics.

Studies on Animals.—In the study of cerebrospinal meningitis animal experiments have yielded practically no results of any importance

owing to the fact that most animals are so little susceptible. Mice seem most so, but even these animals must be inoculated intraperitoneally; subcutaneous injections are usually without results. Guinea-pigs are also somewhat susceptible, but not to as high a degree as mice. (Weichselbaum²³ (Bettencourt and França²⁰). Bettencourt and França injected three monkeys with cultures of meningococcus, one by trephining and two by spinal inoculation. They also rubbed a culture on a cotton swab on the nasal mucous membrane of a fourth monkey. None of these methods was followed by infection. Five goats were trephined and inoculated subdurally without effect excepting a slight fever. One goat was inoculated into the frontal sinus and another into the spinal canal, but without effect.

After irritating the nasal mucous membrane by means of ammonia we rubbed cultures of meningococci into the noses of several very young puppies, but did not succeed in producing an infection.

On the whole, practically all reliable authorities report negative results with animal tests.

Cerebrospinal Meningitis in Other Animals.—There are but scanty references to the simultaneous occurrence of cerebrospinal meningitis among domestic animals and household pets. Magail³⁴ observed an epidemic of cerebrospinal meningitis in Donera, Africa, in 1845, similar to one he had seen in France in 1837-42. The cases occurred suddenly among the soldiers in February. No cause could be found, but it was remarked that an epizootic had broken out among the barnyard fowl two weeks previously and raged among them for two months. Albrecht and Ghon¹⁵ in discussing this point say that the cerebrospinal meningitis of horses has been said to be due to the meningococcus. The disease among horses (the so-called Borna'sche Krankheit) was very frequently observed in Saxony in 1894-96. Yet no cerebrospinal meningitis was observed among the people at that time. They think the causative agent of this disease to be entirely distinct from the meningococcus. The same view is held by Siedamgrotzky and Schlegel,³⁵ and by Johne.³⁶

We have made numerous inquiries among the veterinarians and stablemen in New York City regarding the presence of cerebrospinal meningitis among horses. The answer has almost invariably been that no cases of the diseases have been observed for years. Two cases were mentioned as having occurred early in the season. One veterinarian, to be sure, stated that some three years ago he saw about 150 cases of the disease among some 8,000 horses belonging to a street railway company of this city. The statement could not be verified and may probably be dismissed as unreliable.

Insects as Carriers of the Disease.—It has been suggested that the disease is carried from individual to individual by means of vermin or insects. So far as the writers have been able to

discover, the literature contains no reference to this side of the subject; the indirect evidence appears to negative the assumption. This evidence consists in the geographical distribution of the disease, local distribution, season, class of people affected, etc. So far as the geographical distribution is concerned, we have already seen that this is very extensive. Locally, the disease has occurred in high and dry regions and in low, marshy ones; near the coast and far in the interior. The older observers were quite unanimous in believing that conditions of the soil and atmosphere were without influence on the development of the disease (Ziemssen³¹). Although the disease has in general been observed usually among the laboring classes, especially where the people were crowded together, it has often been observed to attack people in the best surroundings. Out of 42 cases reported by Ziemssen, 5 belonged to the upper classes. Holbrook³⁷ says that the cases observed occurred in the best and in the worst homes. Some patients were tenderly cared for, others neglected. They were equally affected.

The vermin theory of infection also presupposes the presence of the meningococcus in the peripheral blood of the patients. Although, to be sure, the meningococcus is frequently found therein, its presence does not appear to be at all constant throughout the disease (Elser³⁸). Even when present it does not appear to be so abundant that fleas or bedbugs would be likely to ingest one very often. The length of time which sometimes elapses between primary and secondary cases of cerebrospinal meningitis seems also to argue against this mode of infection. So far as mosquitoes are concerned, it will suffice to say that the disease is prevalent in this country at a season when there are practically no mosquitoes. It would be difficult, if not impossible, to reconcile all these facts with the assumption that an insect or parasite is liable to transport the disease.

Immunity and Susceptibility.—So far as immunity is concerned, there is but little literature. North³⁹ gives one undoubted case in which there had been an attack twenty-five months previously. Another patient had the disease in August, 1808, and again in May, 1810. Herman and Kober⁴⁰ report a girl who had the disease in May, 1886, and died in the second epidemic the following year. Numerous instances are recorded in which several members of one family were affected. Friis⁴¹ observed house and family epidemics which affected two to five persons. Singer⁴² reports eight deaths in one family. Baxa⁴³ observed four cases in one house, three in another and two in a third. Brookes⁴⁴ also reports eight cases in the different branches of one family, in another there were five, and in still another family, four cases. Ziemssen³¹ reports the case of two sisters who were affected. Gifford²⁵ reports five cases in one family, one after another within a week.

In the series of cases studied by us, in two instances the disease had occurred in the same family a year ago (Cases 19 and 52). It is possible that cases 11, 13, 37 and 54 may also be instances of special susceptibility, for in these all the children of the family developed the disease. The same may apply to case 54, in which four out of five children were attacked. The presence of a special susceptibility is perhaps also indicated by the fact that in most of the families investigated, only one or two children out of several were affected. On analyzing the histories of 45 families in which a number of children is noted, we find that these families had a total of 210 children. Of these 210, 63 became infected, while 147, who were probably equally exposed to infection, escaped. Since our own investigations have shown that many healthy persons in contact with cases of cerebrospinal meningitis may harbor meningococci in their noses, it would appear that these persons were more or less immune to such infection. This immunity, of course, can be conceived as being either local (nose or meninges) or general.

Communicability.—There seems no doubt among the majority of observers as to the transportability of the disease, but there is no unanimity as to how this is effected. W. H. Draper⁴⁵ observed an epidemic in Carbondale, Pa. He found that the disease had begun in two places; 1st, where there had been a camp of soldiers, and 2d, where some tramps had carried away things belonging to dead soldiers. Hirsch² expresses himself as follows: "Connecting with the infective nature of epidemic meningitis is the question of its communicability or contagiousness. Most observers have answered it quite decidedly in the negative on the ground of their experience, that those who have come into close and continuous contact with the sick, such as medical attendants and nurses, have been very rarely attacked, and that patients suffering from it had been admitted into the wards of hospitals without any extension of the disease to the other patients ever taking place. On the other side, there are facts that tell in favor of communicability, the most notable of these being the observations made in the epidemic of 1837-40. In these epidemics the disease would seem to have been transported by infected troops from place to place, sometimes even to distant garrisons, where it did not confine itself to the division of troops originally, but spread in epidemic form to several other regiments. Baudin⁴⁶ thinks the disease contagious and has collected the following interesting points:

In 1841 a battalion of troops marched from Pont Saint Esprit, where the disease raged, to Marseilles, which was not yet infected. Shortly afterward two other battalions of the same regiment returned from Algiers and were distributed among the barracks with the first battalion. A little later a case of meningitis broke out among the second battalion.

In 1847 a division of troops, who had suffered much from meningitis at Avignon, was sent to Nîmes. No further cases occurred here among them. But some healthy troops which had arrived from Africa also arrived at Nîmes, and among these cases of meningitis broke out soon afterward.

In Orleans it was twice observed that soldiers sleeping next one another were affected. The two cases outside of the garrison were the mistress of one of the soldiers and her child. In St. Etienne, in 1840, two soldiers who shared one bed were taken sick, one within forty-eight hours of the other. In one of the barracks a soldier returning from guard duty lay down in a bed from which another who had been taken ill with meningitis had just been removed. The second soldier became infected and died. In Aignes-Mortes, out of the people living in one house five were affected, of whom four died. In Strasbourg, among others, there were affected two surgeons, one clinician, five military nurses, seven children of soldiers and several workmen employed about the barracks.

While the disease raged in Strasbourg a regiment from there was sent to Schledtstadt on January 21, 1841. On the twenty-ninth of that month the first case appeared in that town, the child of an innkeeper near the barracks, the inn being much frequented by the soldiers. On February 6, two children, the daughters of the butcher supplying the garrison with meat, were affected. Hirsch² describes a remarkable outbreak in Algiers in 1840, a season when the disease was more than usually prevalent among the troops in France. Algiers is the only spot on African soil where the malady has ever been seen; it is in intimate relations with France, and importation of the disease is made all the more credible by the fact that its first appearance there was among the French troops, with subsequent extension to the civil residents. Horner⁴⁷ suggests that in the epidemic in the hospitals of Washington, D. C., in 1864-5 the disease had been introduced from the seat of the war. Broussais⁴⁸ has come to quite different conclusions regarding the spread of the disease. He says that the epidemic affected chiefly the military. It began at two points in France in 1837, namely, Bayonne and Narbonne. From these it spread in somewhat radiate fashion. The disease did not seem to be due to a transportation of the virus through the marching regiments, for the disease crossed the Italian frontier and raged in Italy in 1840-41. In no instance could direct contagion be demonstrated. Out of 1,041 cases there were 592 deaths (1:1.75). Brooks⁴⁴ investigated the history of 112 cases and says: "So far as contagiousness is concerned, the answer from the different reporters was universally 'No.' The only evidence that supported the theory was that in a few instances more than one case occurred in the same family. The evidence becomes less valuable, however, when we

find that these cases occurred almost simultaneously with each other, or were so far separated as not to show any relationship with each other. One of the very best studies on the spread of the disease was made by Peterson,⁴⁰ who investigated the histories of the cases occurring in Berlin in 1895-6. By extremely careful work he was able to connect a series of 23 cases one with another, thus showing a high degree of communicability of the disease.

Original Investigations.—The clinical data on which this study is based were limited to cases occurring two or more in one house in the period from January 1, 1905, to June 1, 1905. This limitation was maintained because it was felt that their careful analysis would be more apt to throw light on the mode of transmission than would an analysis of the other cases.

The bacteriological study, on the other hand, while it included some of the cases of the clinical series, sought especially to obtain data on the occurrence of the meningococcus in the nose. For this reason it embraced an extensive series of individuals, including not only cases of cerebrospinal meningitis, but also persons apparently perfectly well.

Clinical Study.—The record of cases of cerebrospinal meningitis, which is under the direction of Dr. Billings, is kept on the card catalogue system and arranged by streets and numbers. It is therefore a comparatively easy matter to run over the cards and note the names and addresses where several cases have been reported from one house. The cards from January 1st to June 1st numbered just about 1,500, and among these, 88 instances (representing 200 cases) of multiple cases were discovered. Lack of time prevented the investigation of all these 88 instances, but the following results, obtained by a careful study of 58 instances, would in all probability apply to the remainder.

1. At 488 Eleventh Avenue, Johnny, ten years old, died in March, after an illness of one week. He was not sent to the hospital. On May 2, his brother, Tommy C., aged eight years, developed the disease, dying on the following day. There are three other children in the family. Besides these cases the disease appeared in *another family* in this house. Ed. M., five years old, was sick from March 17, about one week after J.'s onset. There are two other children in the M. home. No further contact can be discovered except that the children played together in the street.

2. Michael K., two years old, of 64 Amsterdam Avenue, became ill with cerebrospinal meningitis April 24, and died May 8. He was not taken to a hospital. On May 3 his little sister Agnes, aged four years, became ill with the disease. She has since recovered. There are three other children in the home. Agnes did not sleep with Michael.

3. Nellie L., aged three years, of 317 East Thirty-eighth Street, became ill with cerebro-

spinal meningitis on March 25. Two days later, Mary, aged eleven years, developed the disease and died in five days. Nellie recovered. There are six children in the family, which occupies four rooms. There was another case of cerebrospinal meningitis in the house (but the people have moved and it is impossible to get data about it). It was reported April 27 and was a child one year old.

4. Celia M., in 425 West Thirty-first Street, 9½ years old, was taken ill with cerebrospinal meningitis on March 3, and died March 4. Five other children at the time, the family living in four rooms. Previous to the illness all these children slept in one bed. On April 5 one of these developed the disease and died April 6. There are no cats or dogs. There may be bugs.

5. Michele T., aged five years, of 161 West Twenty-seventh Street, died of cerebrospinal meningitis on April 1, after an illness of twenty-four hours. There were five other children, the family living in two rooms on the fourth floor. On April 19, R. F., aged 11½ years, living on the second floor, developed the disease and was taken to Bellevue the same day. There is very much intimate intercourse between these two families, children going into each other's homes all the time. The F. family also have two rooms, fairly clean. Two other children still left. These were not affected.

6. Katy S., aged sixteen months, living at 347 East Seventy-third Street, died of cerebrospinal meningitis on March 22, after an illness of one day. There is one other child. Among those who came to the funeral was Mr. P., living on the same floor. None of the P. children or Mrs. P. attended. Peter P., aged three, developed the disease and died on March 30. There are three other children in the family, which lives in three rooms; mother and father go out to work, the smaller children being taken care of by a family across the street. Interval between cases, six days. There is another case of cerebrospinal meningitis on the ground floor of the same house. Marv S., aged thirteen years, the daughter of a small shopkeeper (furniture), was taken ill February 16; she died March 19. Typical history. Two other children, ten and twelve years. No direct contact can be discovered between this family and either of the preceding.

7. Elizabeth S., 402 East Sixty-fifth Street, 2½ years old, suddenly developed cerebrospinal meningitis on the night of March 20. The child did not play out in the street with other children, but was taken out daily by her mother. The day preceding her illness she had played on the roof in some sand. Her mother was hanging out the wash. Playing in the same heap of sand was a Johanna St., age 3½ years, living in the same house (model tenement). Johanna was taken sick two days after Elizabeth and died April 8. The St.'s keep one dog. Both families

have excellent clean apartments, plenty of light and air.

8. At — Hospital a chronic rheumatic who had not been outside the hospital for many months suddenly developed cerebrospinal meningitis. Three weeks before this there had been two cases of the disease on the same hall. All of the patients, including the rheumatic, had private rooms. Connection between these cases is apparently through the nurse, he having attended all three cases.

9. Bartholomew M., age twenty-three years, died of cerebrospinal meningitis on January 31 after an illness of two days. He was removed to the hospital the day he was taken sick. The young man boarded with Mrs. Hart, the housekeeper of the building. This woman sweeps and cleans the halls, etc., daily, and sets out the ashes, but does not come in contact with the tenants any more than an agent collecting the rents. On March 20, Bridget L., aged twenty-one years, one of the tenants living on the next floor above, developed the disease. She has since recovered. There are two children in the L. family; none in the H. No cats in either home.

10. Joe F., aged four years, of 593 Greenwich Street, rear house, was taken sick with cerebrospinal meningitis on March 7 and died March 9. The family consists of the parents and two other children. They occupy two rooms. On March 11, John C., aged five years, a playmate of Joe F., developed the disease and died March 14. Two other children in the family. Two rooms. Filthy; no cats. Joe's most intimate chum was another boy named Buster. This boy, however, was not attacked by the disease.

11. Isaac C., 174 Clinton Street, aged ten years, developed cerebrospinal meningitis about three months ago on a Saturday afternoon. That same evening his brother Moe, aged four years, developed the disease, dying within twenty-four hours. On Monday two other Thereupon all three were sent to Gouverneur Hospital, where they finally recovered. When Isaac and Moe became sick on Saturday, the parents sent Louis and Philip out of the house to some relatives on Sunday. Nevertheless they developed the disease in the latter's house the next day. In this house these two children slept together with the other children in that family. None of the latter, however, were affected.

(To be Continued.)

Case of Transposition of Viscera Showing Heredity.—B. M. RANDOLPH (*N. Y. Med. Jour.* and *Phila. Med Jour.*, Nov. 18, 1905) reports a case of transposition of viscera which is interesting on account of the heredity history. The heart, liver and lungs showed complete transposition, while the area of splenic dulness could not be definitely determined on the right side. The clinical findings were supplemented by an X-ray photograph. The interesting feature connected with the case is that the maternal grandfather of the case presented the same phenomena, while the mother, sisters and brothers are all normal.

RESULTS OF COLD IRRIGATIONS AS COMPARED WITH WARM IRRIGATIONS IN THE TREATMENT OF GONORRHEAL URETHRITIS AND ENDOMITRITIS.

BY E. C. SHATTUCK, M.D.,
OF MANILA, P. I.

THE purpose of this paper is to report the results obtained by the use of cold irrigations in 277 cases during a period of five months as compared with the results obtained by the use of warm or hot irrigations in 295 cases during a period of five months. These results cannot be attributed entirely to the temperature of the solutions for the reason that various antiseptics were used in the solutions at different times. By cold irrigations is meant, solutions of the temperature of ordinary tap water. The temperature probably varied a little with changes of weather as did also perhaps in a greater degree, the warm irrigations, for other reasons. As no thermometer was used, it is impossible to say how much the temperature varied from day to day.

The cases consisted of gonorrheal urethritis, vaginitis and endometritis, without or with complications. The complication which retarded the cure most was chronic metritis. All cases were positive microscopically on beginning treatment and were not discharged cured until negative both clinically and microscopically.

The method of irrigation was as follows: Vaginal douches with ordinary douche points followed by urethral irrigations by means of a reflux silver catheter were given twice daily. Intra-uterine or intracervical irrigations were given once daily, using a return current metal catheter, except in cases where the uterus was not involved. The treatment was reinforced by vaginal tampons, once a day, of 15 per cent. ichthylol in glycerin, or 5 per cent. carbolic acid and alum in glycerin.

The antiseptics which were added to the solution were, at different times, lysol in 1/2 to 3/4 per cent. solution, potassium permanganate 1-3,000 to 1-2,000, and for intra-uterine irrigations, zinc sulphate 2 per cent. solution and potassium permanganate 1-2,000. During half of the first period, while warm irrigations were being used, the antiseptic was lysol; during the latter half potassium permanganate was used. During the period of cold irrigation, potassium permanganate in solutions of 1-2,000 was used almost entirely.

The results, in general, obtained while warm irrigations were being used were fair. In cases where intra-uterine irrigations were given, there was, as might be expected, an occasional case of uterine colic.

My reasons for trying the cold irrigations were as follows: First, the cases of chronic metritis, in spite of all treatment did not make satisfactory improvement; second, it was desirable, if possible, to reduce the time of treatment; third,

I had used cold intra-uterine irrigations when hot water was not available, had seen no bad results and knew that they were used to some extent by hydrotherapeutic authorities in similar cases.

The following tables give the month, number of cases and average days of treatment:

FILIPINAS.			JAPANESE AND OTHERS.		
Month.	Cases.	Average No. of Days.	Month.	Cases.	Average No. of Days.
March 12/3	16	47	March 12/31	21	25
April.	50	41 6/25	April. . . .	43	10 31/13
May . . .	32	38 5/8	May	30	15
June. . . .	46	43 17/26	June	37	12 13/17
July 1/12 . .	11	36 7/11	July 1/12 . .	11	27
Total.	135	Average, 36 1/2	Total . . .	142	Average, 15 1/2

Of the above there were observed, according to months, as follows:

March, 2 cases of chronic metritis, 101 and 239 days resp., both Fil.
April, 2 " " " " 145 " 117 " " " 1 Fil., 1 Jap
May, 1 " " " " 113 days, Filipina.
June, 2 " " " " 130 and 133 days, resp., both Fil.
July, 1 " " " " 114 days, Filipina.

FILIPINAS.			JAPANESE AND OTHERS.		
Month.	Cases.	Average No. of Days.	Month.	Cases.	Average No. of Days.
July 1/31.	30	53 2/3	July 12/31.	18	24 5/13
August.	29	34 17/ 9	August.	28	21 4/7
September.	28	25 3/14	September.	27	17 24/27
October	42	1 13/41	October	2	20 11/16
November.	42	26 6/7	November..	19	18 7/19
Total.	171	Av., about 31	Total. . .	124	Av., 20 55/124

Of these there was in August one case of chronic metritis, lasting 32 days, in a Filipina.

It is necessary to explain that the cases are taken up in the month during which treatment was commenced and, therefore, most cases of chronic metritis taken up in the first period were discharged during the second period. Attention is invited to the fact that but one case of chronic metritis occurred during the second period of observation.

The average number of days for Filipinas was decreased from 36 1/2, during the first period, to thirty-one days during the second period, and was increased from 15 1/2 days during the first period to 20 1/2 during the second period for the Japanese. There were also cases of uterine colic during the latter period about as frequently, I should say, as during the first period. One case of peritonitis occurred during the second period. There were no deaths in either period under observation.

The figures here shown do not appear to me to warrant any positive conclusions. I therefore submit the report for discussion or criticism without further remark.

MEDICAL PROGRESS.

MEDICINE.

Tolerance for Purin Bodies in Gout.—There can be no doubt that the relation between gout and uric acid is a very intimate one, for it has been found that if a patient predisposed to gout and kept for a long time on a diet free from nucleins, takes a single large amount of meat, an acute attack will often follow. C. von NOORDEN and L. SCHLIEF (*Berl. klin. Woch.*, Oct. 9, 1905) have shown that there is a certain tolerance for nucleins in gout, just as there may be a tolerance for carbohydrates in diabetes. The following experiments were made on a large number of patients: Four hundred grams of meat were added to the diet and the amount of uric acid extracted estimated for several days. In almost all instances less was excreted than under normal conditions. If only 200 grams were allowed, a sufficient amount was often voided, and the patients did not suffer from a relapse. It is, therefore, important for the comfort of the patients to determine in every case the exact degree of tolerance and to restrict the diet accordingly.

Typhoid Perforation.—From a study of the subject, R. H. HARTE (*Journal A. M. A.*, Oct. 28) concludes that perforation is a much more common accident in typhoid fever than is generally supposed, it being the cause of death in one out of every three or four fatal cases. It occurs most frequently between the fourteenth and twenty-first day of the disease, and does not appear to be more common in the severest than in the mildest types of the disorder. The ileum is its most frequent site, the majority of perforations occurring within 12 to 18 inches of the ileocecal valve. The next most common localities are the appendix and the cecum. In a large percentage of cases pain is present, though it may be only transitory. In about half the cases the onset is sudden, severe and with increasing intensity, localizing itself in the right iliac fossa. Tenderness and rigidity are present to a greater or less extent in all cases. The latter Harte considers a most valuable sign, never absent except in patients with very large and pendulous abdomens. If perforation is suspected the temperature should be taken every hour to verify any marked variation in this symptom. Distension is a late symptom, usually noticed some hours after the perforation has occurred. Obliteration of liver dullness is not regarded as a reliable sign. The study of the leucocytes is of little use, though occasionally their increase may make the diagnosis more positive. The differential count is of no practical value. Before making a positive diagnosis, pain caused by pleurisy, pneumonia, cholecystitis, acute gastrointestinal indigestion, iliac, thrombosis, appendicitis, peritonitis, renal calculus, distended urinary bladder, or even a hemorrhagic exudate into the abdominal muscles must be carefully considered, as any of these may simulate perforation. Nature may sometimes close perforations, but the only rational course when they occur is surgical intervention. No case is too desperate for operation, as the worst are sometimes saved. In case of doubt, when symptoms point to perforation, the safest course is to operate. Even when no perforation is found, patients, as a rule, seem benefited by operation. With the diagnosis once made Harte knows of no other condition, except possibly hemorrhage, in which speed in operating is so important as in this. Everything should be prepared beforehand so that there may be no delay when once the knife is taken in hand.

The Psychoses of Heart Disease.—W. HOUSE (*Journal A. M. A.*, Oct. 28) calls attention to the mental

disturbances associated with cardiac disease, which, he thinks, have been rather neglected by authors of textbooks, the heart disease being regarded either as a complication of the insanity, or the organic symptoms predominating, they either overshadow the slight mental ones or so disable the patient that he can be readily cared for in the wards of a general hospital where psychic derangements are considered as only secondary and subordinate to his bodily ailment. In the severer cases this may do no harm, but in the slighter ones it is bad, as the mental disorder which should be attended to is likely to be overlooked. He recognizes four principal types, more or less shading into each other, as follows: (1) Panicky conditions alternating with some depression and irritability, without active delusions or hallucinations. In such cases the patient is usually terrified by the consciousness of cardiac sensations and irregularities. (2) Delusive symptoms based on misinterpretations of local cardiac phenomena, such as pain. (3) Active hallucinations and delusions from circulatory disturbances involving sensory organs. (4) Dementias from secondary lesions of the brain. Case histories illustrating the different types and the relation of the heart lesions to the mental symptoms are given. It is not contended that the heart disease was the sole cause in every case, but rather that it was the exciting cause, except wherein the cardiac troubles were rather the effect, and especial emphasis is given to the relationship of mental improvement to the treatment directed to the heart trouble. During a residence of nearly two years in a large State hospital the author observed but few of these cardiomenal cases, and the inference is that they are more often treated by the internist than by the alienist, and their psychic side has thus been minimized.

Modern Problems of Nutrition.—Prof. von NOORDEN (*Journal A. M. A.*, Oct. 28) reviews the history of several of the problems of metabolism in recent years. He states that a number of problems, of interest alike to the physician and to the pathologist were left unsolved during the earlier periods of quantitative investigation, and that it is only now that, thanks to the better technic of recent times, exact methods are available for their estimation. He takes up the metabolism of energy and states that the daily food must have certain caloric values if the weight of the body shall neither increase nor diminish. With the increase of muscular work the amount of energy consumed increases in proportion. Children require a relatively high, and old people a relatively low, exchange of energy. Von Noorden emphasizes the necessity for further extended observations of the personal equation in this matter in order to provide a clear "mathematical" insight into the condition now designated by the term individuality. He referred to the experiments of Rubner and Pflüger, which tend to show that when the food contains an excessive quantity of proteids the energy exchange rises considerably above the average. He mentions briefly several experiments made by himself and his assistants, and states that among other things one important fact has been established, viz., that increase in energy exchange follows the administration of thyroid gland substance. He discusses metabolism energy in people who are run down by chronic disease or by insufficient nourishment and the energy exchange in fevers and in diabetes mellitus. He says that the exact form in which nitrogen is retained in the body is still entirely unknown and that a knowledge of this would throw some light on the changes which molecules of albumin undergo in the body. He reviews some of the work which has been done recently in physiologic chemistry, referring especially to the amino acids and to glyocol. He concludes by stating

that great problems still await solution and that medical science looks to America for many enthusiastic workers in this field.

Vibratory Winking of the Eyelids in Renal Disease.

—A clinical sign that may be of decided diagnostic significance in disease of the kidney at any early stage in the development of the morbid process is described by G. ULLMAN (*Comptes Rendus de L'Acad. des Sciences*, Sept. 11, 1905). It consists in a regular vibratory closure of the eyelids, occurring in nephritic subjects, usually in the beginning of the disease. The vibration affects usually the upper lids, most frequently one lid; rarely it occurs in the lower lids. If it occurs at the external commissura, the entire eye will share in the movement. The duration of the attacks is thirty minutes and sometimes more. The attacks may often be repeated for a number of days and then cease. There is a marked variability in different individuals with respect to the appearance of this symptom, which does not show itself infallibly in all cases affected or threatened with nephritis. This condition has not yet been adequately explained. A theory of auto-intoxication has been suggested, placing this symptom in the same category with the myosis that frequently occurs in renal disease.

Pathology and Prevention of Secondary Parotitis.

—In a full discussion of this subject, R. T. H. BUCKNALL (*Lancet*, Oct. 21, 1905) concludes that every case of secondary parotitis, regardless of the primary condition is due to an ascending infection of Stenson's duct. It has been shown that the healthy parotid duct cannot be infected either by smearing its orifice with micro-organisms nor by introducing them into the lumen, but if the organisms are excessively numerous or virulent, if the general vitality of the animal has been previously depressed, or if the normal secretion of the parotid has been altered in quantity or quality, an ascending infection of the duct leading to the production of parotitis, showing all the appearances which have been observed in secondary parotitis in the human body, can easily be produced. By referring to the list of disorders which have been complicated by this affection it becomes evident that all present one common feature, which is that they are all particularly likely to be accompanied by the conditions previously stated as necessary for the production of duct infection in animals. In addition, the comparative frequency with which parotitis occurs in connection with each individual disorder varies directly with the degree and frequency with which these predisposing conditions are met with in each instance. This rule applies equally to the surgical aspect and to the medical. The prophylaxis resolves itself into the scrupulous cleanliness of the oral cavity when it is known that predisposing factors are present.

Some facts Concerning the Early Diagnosis of Pulmonary Tuberculosis.—Though during the last decade efforts have been concentrated upon education and prevention, yet in the year 1904 the death-rate from tuberculosis in New York State was unexplainably increased by more than one thousand. JOHN H. PRYOR (*Med. Rec.*, Nov. 25, 1905) contends that concerning the early diagnosis of tuberculosis the education in medical schools is faulty and the teaching of text-books inadequate and misleading. This may be due to the recent distinctive prominence given to laboratory methods and the tendency to discard the methods of the clinician. The unwarranted dependence upon the presence of the bacillus in the expectoration and the exaggerated idea of its importance as the only reliable single sign have done immeasurable harm. Mis-

understanding of the premonitory symptoms is widespread. Those considered are usually indicative of advanced disease. The classical symptoms almost invariably presented in combination are loss of appetite, chlorosis or anemia, loss of weight, cough with or without expectoration, hemorrhage and fever. It is extremely rare that all of these are associated at an early time. Persistent fever, even with rest, is the most reliable and constant guide. The rise of temperature occurs most frequently in the evening, reaching its height between five and eight o'clock, but may occur at noon. The influence of external temperature must be considered, as cold weather certainly controls and has an influence upon the febrile curve. In children the temperature range is apt to be higher and other symptoms more marked. Loss of weight may be gradual or rapid, great or slight. The standard of weight should not be fixed at the highest ever attained by the individual. In truly incipient and favorable cases the loss of weight may be very slight or nil. The loss of appetite and indigestion are more important as bearing upon the prognosis. Chlorosis and anemia are much overestimated as early symptoms, and are frequently due to other causes. Practically all text-books lay stress upon cough as an early and most constant symptom. Cough is apt to be due to pharyngeal irritation, and subsides after local treatment. Many times the so-called hacking cough is nervous in origin. Cough as an early sign of tuberculosis has been much exaggerated, but it performs the valuable service of directing attention to the chest. A dry cough, accompanied by some pain and irritation in the chest, is of value and is apt to be associated with localized pleurisy. When bronchial congestion with increased secretion is present the cough is more distinctive; however, it is not usually of a hacking character. Hemorrhage during any stage of pulmonary tuberculosis rarely occurs in the Eastern or Middle States. Its occurrence is almost a positive sign. The three important symptoms which may be reliable guides are hemorrhage, fever and loss of weight, when they cannot be otherwise explained. In eliciting the physical signs of incipient tuberculosis reliance must be placed almost entirely in percussion and auscultation. A proper interpretation of these requires conscientious practice and study. Cogwheel respiration may have little diagnostic value except to arouse suspicion. It is often purely nervous in origin. One of the most reliable signs of slight consolidation, and one which is surprisingly neglected, is the transmitted whisper produced by the patient whispering the word ninety-nine. The variation in pitch and the prolongation of sound are more easily detected than when the speaking voice is employed. Finally, it must be remembered that the duration of the expiratory sound cannot be properly measured if the patient is not allowed to breathe naturally and preserve the rhythm.

The Influence of Posture on the Normal Cardiac Sounds.—WILLIAM GORDON asserts that change of position affects the normal heart sound (*Brit. Med. Jour.*, Nov. 18, 1905). The change produced is an alteration in the character of both sounds. It will generally be found that in the upright position the first sound is sharper, whereas the second sound is duller than in the recumbent position, so that in the former the sounds resemble each other more closely than in the latter. These changes are accounted for by the action of gravity. If the position of the valves of the heart in the upright and recumbent positions are considered it becomes obvious that when the first sound is produced a weight of blood is resting on the mitral and tricuspid valves if the person examined be recumbent,

but that if the person be erect no such condition exists. Again, when the second sound is produced a weight of blood is resting on the aortic and pulmonary valves if the person be erect, but if recumbent no such weight rests on these valves. From the foregoing it is deduced that a valvular sound varies according as a fluid weight does or does not rest on the valves producing it. Experimentally this can be proven. Posture also affects the deep cardiac dulness. In the erect position the cardiac dulness drops nearly a rib's breadth, on an average, further from the clavicle than in the recumbent position, and becomes about $\frac{3}{4}$ in. wider from side to side at the level of the fifth costal cartilage. The increase is greater to the right than to the left, that to the left being about one-third inch.

An Aid to Prognosis in Typhoid Fever.—In forming an opinion as to the chances of recovery or of death the experience of fifteen years has led ROBERT M. SIMON (*Brit. Med. Jour.*, Nov. 18, 1905) to note the amounts of urine passed in the later stages of enteric fever as a guide of the utmost value. Polyuria is a well-known symptom at the end of nearly all febrile disorders, but in connection with typhoid fever it is a very marked and conspicuous condition. Toward the beginning of the fourth week, seldom earlier, sometimes a little later, the urine increases in quantity from about 30 ounces to 60, 80 or even 100 ounces daily. From extended observation it has been found that polyuria occurred not only in every case that was doing well, but also in many cases of great severity in which no general improvement or amelioration of symptoms could be observed. Even in severe cases, if polyuria occurred, the patients all recovered; nor was it necessary in order to estimate the value of polyuria as a means of prognosis that the patient should be in a state to voluntarily empty the bladder. Should absence of polyuria exist in a case supposed to be doing well, the attaching of too much importance to the general improvement is to be deprecated. In no case in which polyuria was noted did perforation occur, and in no case was there hemorrhage of any moment after polyuria was established. Furthermore, the occurrence of relapse is of the most extreme rarity when polyuria has once begun.

PATHOLOGY AND BACTERIOLOGY.

Inhibition of Bacterial Growth.—When a freshly prepared culture of bacteria is examined from time to time, it will be found that the germs increase only up to a certain limit. H. CONRADI and O. KURPJUWEIT (*Münch. med. Woch.*, Sept. 12, 1905) have discovered that there are certain inhibitory principles which form in every bacterial culture from the first hour on and which are of the nature of enzymes. The inhibitory power of these enzymes is greater than that of carbolic acid, for a dilution as high as 1:3,200 will still prevent the growth of bacteria. The enzymes of one germ will also inhibit the growth of other germs. They are easily destroyed by heat, are insoluble in alcohol and diffusible, but do not pass through bacterial filters. They are thus entirely distinct from the bactericidal substances which form through autolysis and never manifest bactericidal properties by themselves.

Bacteriology of Streptococci.—An excellent culture medium to quickly differentiate between the pneumococcus and the streptococcus has been discovered by E. FRAENKEL (*Münch. med. Woch.*, Sept. 28, 1905) in the Conradi-Drigalski medium, originally recommended to quickly separate typhoid from colon germs. The pneumococcus will grow very poorly in the form of small colonies which do not

alter the color of the medium, while the streptococcus forms a dense grayish-white growth, at the same time turning the medium intensely red. If the pneumococcus has been grown for some time on artificial media it may form chains and thus closely resemble the streptococcus; on the Drigalski agar, however, it will rapidly regain its original lanceolate shape. The technic of examining suspicious material would thus be as follows: A culture is first made on blood agar. If green colonies appear they are either pneumococcus or *Streptococcus mitis*. By further planting on Drigalski agar these two can be easily differentiated. This medium is also excellent for the *Streptococcus mucosus*, since this will grow abundantly and will form characteristic, mucoid colonies in twenty-four hours, without changing the color. If a small amount of sterile fat is rubbed upon the surface of the plates, the growth will be still better. The identification of the third form, the *Streptococcus erysipelatus*, does not require Drigalski plates, since the colonies on blood agar are surrounded by a lighter zone, which is caused by the hemolytic action of the germs upon blood and is characteristic.

Bacteriology of Paratyphoid.—During the course of an epidemic of protracted fever, a bacillus was isolated from the feces of the patients by A. SCHORTLIUS (*Münch. med. Woch.*, No. 44, 1905) which corresponded closely to the germ described as paratyphoid bacillus. The surface colonies on agar resembled those of colon; milk was not coagulated, but cleared up after weeks and indol could not be detected even after weeks. Litmus whey first turned red, but after several days again blue; glucose was split up and neutral red decolorized. On potatoes, the bacillus formed an abundant yellowish-brown growth, and on Drigalski agar, blue colonies. The appearance of the stab cultures on gelatine is not always the same, so that it is hardly proper to speak of characteristics here. A good culture medium to differentiate the bacilli from typhoid is Drigalski's agar, since they grow more rapidly and form colonies with depressed center and a distinct peripheral zone, consisting of zooglia. The neutral red agar will differentiate the two forms of paratyphoid from typhoid and Barsiekow's medium from colon. To differentiate the two forms of paratyphoid from each other, potato is most serviceable, since type B grows much more profusely. Clinically, the cases resembled typhoid very accurately. The serum of the patient's blood agglutinated the paratyphoid bacillus in much weaker dilution than type A or typhoid.

The Blood After Operation.—A rise of temperature of 1° F. occurs very commonly after operations, particularly during the first twenty-four hours. F. I. DAWSON (*Edin. Med. Jour.*, November, 1905) has also found that there is almost invariably an increase in the number of leucocytes, independent of the number of red cells. This increase is caused chiefly by the enormous increase both in proportion and in absolute numbers of the polymorphonuclears, while the lymphocytes are decreased in practically every case. In a small proportion of cases, a faint glycogen reaction could be obtained. In discussing the possible cause of the leucocytosis, the author states that the preponderance of polynuclear cells and the occasional presence of the glycogen reaction make it highly probable that a certain amount of unavoidable infection is responsible in almost every instance. It is admitted that the absolute exclu-

sion of micro-organisms from wounds is impossible, and that a very slight infection would be sufficient to account for the blood changes. If the leucocytes do not decrease considerably by the second day there is probably something more than the ordinary reaction, and the wound may really be turning septic. The same conclusions are justified if there is a secondary rise.

Bacteriology of the Accessory Sinuses of the Nose.

—As the result of a most careful bacteriological examination C. J. LEWIS and A. L. TURNER (*Edin. Med. Jour.*, November, 1905) conclude that the organisms found in the healthy nasal cavities are usually of the same variety as those occurring in abnormal conditions of the nose. The pus obtained from some cases of antral suppuration may combine organisms similar to those occurring in the buccal cavity. Occasionally bacilli distinctive of dental caries may be isolated from the pus of antral abscesses. The healthy sinuses are probably sterile, but in suppuration three types are commonly encountered: Streptococci, staphylococci and pneumococci. In chronic suppuration, streptococci were found in 80 per cent., while in the more recent cases they occurred in 60 per cent. On the whole, virulent germs are found twice as frequently in acute cases than in chronic. The bacteriological examination corroborates the clinical observation that the antrum is more frequently infected by way of the nose. Nasal polypi occur more often in cases of associated sinus suppuration than in simple cases of sinus abscess. Recent cases of uncomplicated antral suppuration respond more readily to treatment by lavage than those of a chronic type.

Retroperitoneal Teratoma.—A case of teratoma of the abdominal cavity, remarkable not only because of its rare occurrence, rapid growth and total absence of symptoms until three weeks before death, but because within its substance there was found a chorion epithelioma, is reported by C. M. NICHOLSON (*St. Louis Med. Rev.*, Oct. 21, 1905). The post-mortem examination was as follows: On opening the cavity of the abdomen and cutting through the posterior peritoneum and transversalis fascia a fibrous capsule enclosing a semi-solid mass and adherent only in the median line and to the right kidney was found. Not without much difficulty could the tumor be removed, so intimately was it attached to the structure, anterior to the vertebral column. The abdominal aorta from the first dorsal vertebra to the fourth lumbar was closely attached to the growth. The gall-bladder was distended, evidently due to pressure on the common duct. Neither the lumbar glands nor the kidneys were enlarged, although the right kidney was adherent to the tumor. The liver, though very slightly enlarged, showed evidence of involvement. The heart and pericardium were normal. The lungs contained two or three hundred nodules. The tumor weighed a little less than two pounds. It was right-angled and lobulated, the lobules being smooth and extending in different directions. On cutting, the tumor was soft, the anterior inferior extremity being partially cystic. Some of the cysts were as large as a hazelnut. The remainder of the growth appeared solid. The outer surface of the tumor was covered with a distinct fibrous capsule. Paraffin section of the Zenker fixed tissue showed a very complicated mass. Portions of organs were found corresponding in embryonic origin to all the germinal layers. Skin, cutaneous organs, central nerv-

ous system, peripheral nerves, represented the epiblast. Mucous glands, tubes, cysts, with epithelial lining, were indicative of the hypoblast. Bone, cartilage, fibrous tissue constituted the mesoblastic structure.

A Ready Method of Differentiating Streptococci.

—As a result of investigation in the study of streptobiology, M. H. GORDON (*Lancet*, Nov. 11, 1905) found a number of tests available for differentiating streptococci. Of these tests the following nine were selected for routine employment: (1) Clotting of litmus milk in three days at 37° C. (2) Reduction of neutral red broth during incubation anaerobically for two days at 37° C. (3) Production of an acid reaction in three days aerobically at 37° C., when cultivated in slightly alkaline broth containing 1 per cent. of saccharose. (4) Ditto, but lactose. (5) Ditto, but raffinose. (6) Ditto, but inulin. (7) Ditto, but salicin. (8) Ditto, but coniferin. (9) Ditto, but mannite. Streptococci that decompose mannite with an acid reaction may with advantage be also tested in the same way against sorbit, glycerin, and isodulcit or rhamnose. The broth used in these tests was ordinary beef broth freed from sugar by cultivating *Bacillus coli* therein for three days at 37° C. and then sterilized, filtered, rendered slightly alkaline, and tinted with litmus. A more convenient and cheaper medium consists of distilled water containing lemco, 1 per cent.; peptone, 1 per cent.; sodium bicarbonate, 0.1 per cent., and 10 c.c. of a 10 per cent. water solution of ordinary solid litmus. Altogether 300 streptococci of normal saliva were subjected to the nine differential tests. As a result they could be divided into forty-eight different types. In the examination of feces by Dr. Houston the test with coniferin was omitted. By means of the eight remaining tests it was possible to distinguish forty different types. A large number of streptococci from both normal feces and saliva were tested in regard to their virulence for mice, but were invariably found to give a negative result. As regards salivary pollution of air the streptococcus found to occur most frequently in circumstances when air is subject to particulate pollution derived from the human mouth is the streptococcus recovered most frequently from saliva. As regards fecal pollution, the streptococcus found most frequently in the feces has been obtained together with the *Bacillus coli* in a broth plate exposed to air contaminated by particulate material derived from people's boots. The investigation as applied to streptococci derived from the human body in disease indicates that considerable diversity exists, though the degree of this diversity has not been fully determined.

Further Observations on Yaws.—In 7 out of 11 cases of parangi, A. CASTELLANI (*Brit. Med. Jour.*, Nov. 18, 1905) found spirochaetes. In the preparations taken from ulcerated lesions various forms are present. One is rather thick and takes up the stain easily. It is morphologically identical with the *Spirocheta refringens* of Schaudinn. Another is thin, delicate, with waves varying in size and number, and with blunt extremities. For this variety the name *Spirocheta tenuis obtusa* is proposed. A third form is also thin and delicate, but is tapering at both ends. It is termed *Spirocheta tenuis acuminata*. In non-ulcerative lesions there may be found a spirochaete which is stated to be identical with the *Spirocheta pallida*. In several preparations taken from patients presenting spirochaetes and also from patients suffering from parangi in whom the spirochaete could

not be found, peculiar bodies were observed. These bodies are generally oval or roundish, 5 to 8 microns in length and 4 to 6 in breadth; sometimes they may have smaller or larger dimensions. In preparations stained by Leishman's method these bodies are stained purplish or bluish and contain chromatin, which may be collected at one point near an extremity or may be scattered. There is no pigment. What these bodies really are and relation they bear to the development stage of spirochaetes cannot yet be said.

GENITO-URINARY AND SKIN DISEASES.

Intravenous Injections in the Treatment of Syphilis.

—BARTHÉLEMY and LEVY-BING (*La Syphilis*, October, 1905) states that none of the various salts hitherto employed for intravenous injections in syphilis has been found satisfactory; the cyanide was too toxic in its action, the sublimate coagulated albumin and the others were unreliable in their action or unstable compounds. A mercury salt suitable for intravenous injections should possess the following qualities: it must be completely soluble, it must not coagulate albumin, it must not be too toxic, it must be stable in solution, it must contain a fixed and known quantity of mercury, and it must be capable of being readily sterilized. As a result of careful study, the authors found that the biniodide fulfils all these conditions. It contains 40 per cent. mercury and is easily prepared. They have also employed the cyanide and the sublimate. In their clinical experiments they employed 408 injections in thirty patients. In two they used the oxycyanide, in five the sublimate, in seventeen the biniodide, and in five both the sublimate and the biniodide. All the patients were women suffering with various types of syphilitic lesions. They carefully describe the technic of intravenous injections, which apparently is less difficult than would at first be supposed. Various anatomical situations were chosen. As a rule, however, the veins at the bend of the elbow are best adapted to this small operation. The doses employed were as follows: Oxycyanide, .01 gm.; sublimate, .01 to .02 gm.; biniodide, .1-.02-.03 gm.; dissolved in one c.c. of water. The intravenous injections were invariably painless, but in some cases difficult on account of the veins being concealed in the subcutaneous connective tissue. In a small number of cases unpleasant consequences were noted. Those of a local character were: ecchymoses, subcutaneous edema, the formation of nodosities, periplebitis, and the formation of scars. The general unpleasant consequences were referable to the toxic action of the mercury, such as salivation, stomatitis and diarrhea. In conclusion, the authors believe that intravenous injections are of service in those cases where it is necessary to obtain a very rapid action, but in which it is necessary to avoid any pain. In other respects the intramuscular injections fulfil all indications and produce the same results.

The Location of Extragenital Chancres.—D. W. MONTGOMERY (*Jour. Cut. Dis.*, August, 1905) gives a brief review of the literature and history of syphilis, recommending that the public be educated instead of being kept in ignorance of the disease. In 1,217 cases which he has seen, 5.5 per cent. acquired the infection extragenitally. The percentage of other observers is given as follows: Krefting (Christiana) reports 15.6 per cent.; Fournier (Paris) 9.0 per cent.; V. Broich (Germany), 9.0 per cent.; Van Walsen (Amsterdam), 8.5 per cent.; Wracek (Vienna), 7.5 per cent.; Bulkley (New York), 5.5 per cent.; and Finger (Vienna), 1.3 per cent. The author states that in Russia from 75 per cent. to 80 per cent. are acquired in this manner,

due to the peculiar customs of the people. As regards sex, all statistics, except those of Neumann and Krefting, give an excess of male infection, Neumann gives 34 males and 48 females, because of the great number of chancres of the lips and of the breast. Krefting gives 61 males and 231 females, for the same reason, viz., infection by wet nurses and kissing, but adds that the disease is also transmitted, among the peasant class, by eating out of the same dish. In 67 cases the following were the locations: lips, 25; tongue, 3; gums, 1; tonsil, 1; corner of mouth, 4; cheek, 1; eye, 1; neck, 1; abdomen, 5; breast, 1; nate's, 1; anus, 3; fingers, 7; wrist, 1; forearm, 2; back of hand, 1. From statistics of other observers 56.4 per cent. were on the lower lip; 43.6 per cent. on the upper.

A System of Venereal Prophylaxis that is Producing Results.—G. SHEARMAN PETERKIN (*Am. Med.*, Aug. 19, 1905) says the education of the individual in the law of sex is the only feasible means, at our present stage of evolution, of lessening or preventing venereal diseases. From sociologic, economic, ethic and physiologic laws, etc., scientific facts are taken as premises, and from these conclusions drawn to prove that this fact must be recognized. With these principles as a working basis, pamphlets—five in number—have been issued by a Committee on Prophylaxis of Venereal Diseases of the Washington State Medical Association. The pamphlets are appended in full, and Dr. Peterkin gives the reason for using them as a means of disseminating such knowledge and for presenting the amount and character of knowledge they contain. The position is taken that business principles of to-day can be ethically applied in leading man, who must and will make his own morality, to the next succeeding evolutionary stage of his morality.

Small Multiple Kerion; An Unusual Type of Tricophytosis. That the ringworm fungus is able to thrive under some circumstances in persons past fifteen years, contrary to the usual opinion, and that the lesions are characteristic, though at times obscured by an associated affection, H. F. WALLIS (*Jour. of Cutan. Diseases*, October, 1905) endeavors to substantiate this by complete clinical histories of ten cases. The author designates the condition as small multiple kerion and gives a résumé as follows: "In analyzing the histories of these cases one is first struck by the coincidence that the patients are all girls, ranging in age from eight to seventeen years. In each case pediculosis was present and in nearly every instance the cutaneous eruption was attributed originally to the pediculosis, which was later shown to be erroneous. The clinical appearance presented was similar in each case of the series; the primary folliculitis followed by pustulation, then by rupture and scar formation with temporary alopecia restoration of the hair, the cycle being repeated in several instances. Particularly characteristic was the recurrence of the lesions on the sites of previous lesions. Another feature especially distinctive was the appearance of the black dots at the margins of the lesions, representing the broken-off stumps of the diseased hairs. Microscopical examination, the growth in cultures and the complete recovery without the destruction of the hair follicles, producing permanent baldness, is conspicuous. It is therefore logical to conclude, in view of these histories and observations, that we have here to do with an unusual type of tricophytosis previously neglected and unrecognized by reason of the associated *Pediculosis capitis*. This series of cases also serve to emphasize the necessity of careful microscopical examination in all conditions in which there is scalp involvement.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor.
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

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LEA BROTHERS & CO.,

No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, DECEMBER 23, 1905.

THE ARMY "CANTEEN."

Now that Congress is again in session, it is devoutly to be wished, though but little to be expected, that some definite steps may be taken to re-establish the "canteen" in the United States Army. That this is the combined and universal desire of everyone who has had any knowledge of its practical benefits, or experience in the evils that have followed its abolition, there can be no question.

But will the average member of Congress, with the ever-present desire for re-election strong in his patriotic bosom, with the yawning gaps in his political fences—through which the pit-falls to his ambition, like "the eye of God shines through"—dare to vote openly for a measure, that is, from ignorance or intolerance, obnoxious to many of his constituents? Will he listen to those who are in a position to know whereof they speak, even if the voice like that of conscience is small and still, or will he lend his ears to the fanatical clamor of a mass of feminine men and masculine women, whose exponent is of the type of Carrie Nation, and whose emblem of achievement is "a hatchet and the rum shop lying low?"

In the good old days of yore, when conservatism was in flower, and when men were

apprenticed in their youth to a calling, which they followed until they were in turn followed by their mourning families, a life-long familiarity with a subject in all its phases and bearings was supposed to breed an opinion entitled to something more than mere contempt. Even when two of a trade did not agree, both were listened to with respect as representing the expert opinion of authorities, possessed of practical experience. But when all connected with a subject united, a verdict was forthwith rendered, from which the idle vaporings of sentimental theorists found no appeal.

And this to-day is practically the state of the canteen problem. Surely the officers, who lead and control the rank and file, and live and have their being with them, must understand their needs and recognize their failings far better than a band of egotistical reformers who are totally ignorant of the class which they wish to coerce rather than to influence, and whose one idea is not to regulate the supply and quality of the liquor furnished, but to prohibit it altogether.

Tommy Atkins and the boy in blue are very much the same article of war, particularly when they are impregnated with a dash of "Mulvany," as, indeed, are all the units of the fighting machine the world over, and the only way to prevent the modern soldier, with his polyglot admixture of brains, dash and ingenuity from obtaining liquor, is to abolish not only its manufacture, but the production of the things from which it is made. And this would be much more efficacious and fully as easy of achievement.

With the temperance question in the abstract we have nothing to do. It does not indeed enter into this case. We simply take it for granted that as there is liquor to be had, the enlisted man will have it, and the argument is consequently narrowed down to whether it is not better to give it to him in moderation, and of good quality, in his own mess halls, in the company of his comrades, and under the eye of his own non-commissioned officers, than it is to drive him in his hour of rest—his warfare o'er—from the security and restraining influences of the *esprit de corps* of his own post, and force him to seek the low grogeries and the vile companionship that infest the immediate surroundings of all army stations.

That the canteen should be re-established is without doubt, as we have said, the universal opinion of the entire army, as can be seen by the

report of the last Adjutant-General, as well as by the published and expressed views of other officers of the service, which prove that general drunkenness and discontent have increased since its abandonment, and that desertions have also become much more frequent. This consensus of opinion is so general that it is seldom indeed that there is such a unanimity of opinion on a point of, if not of law, at least of order, and this, with the fact that our senators and representatives, in Congress assembled, have been forced to prohibit the sale of liquor in the restaurants in the capitol, and to confine its use to the committee rooms, shows conclusively that it is not enlightenment on the subject that is required by our Solons, but only a little more legislative backbone—a sense of moral responsibility that can look farther ahead than the next local election.

For the evidence of the commissioned officers of the army is overwhelming and convincing. As the reports of the War Department have shown that "all of the generals of the army, except two; all of the ten colonels of cavalry; all of the seven colonels of artillery; all of the forty-nine colonels of infantry, say one, and five hundred and four out of five hundred and sixteen commanding officers of companies, batteries and troops, are for one reason or another opposed to the law abolishing the canteen." Ninety per cent. of those who are in command of posts are of the opinion that the abolition of the army post exchange has increased drunkenness, desertion and court martials, ninety-five per cent. state that the condition of the soldier's health has deteriorated, and *all* agree that morality and discipline have been injuriously affected. All of which has been presented to Congress in a bill (H. R. 16,634) introduced by Mr. Morell, December 15, 1904.

To this is to be added the testimony of the "Woman's Army and Navy League," an association made up of the wives, the sisters and daughters of the officers of both services. Women who have passed their lives in ministering to the wants of the man behind the gun, and who, from practical daily experience, have a deeper insight into the needs of the soldier, a more perfect knowledge of his strength and his weakness, than any mere band of fanatical enthusiasts whose single shibboleth is that "whisky is not good for man." This may be true, but as the supply is inexhaustible, it cuts, as an argument, no more ice than would cool the substituted lemonade. As these ladies submitted a state-

ment to the Committee of Military Affairs in the United States Senate, it cannot be claimed that both branches of Congress have not been informed of the true state of affairs.

That any Congressional relief will be forthcoming, we doubt. The temperance question has become a political issue, and this is a case where they unquestionably will let "I dare not," wait upon "I would." It might be better for all concerned, that the avowal should be made. Better for the politician than to masquerade as an "associate" reformer—and better too for the canteen. For if there is one aphorism in this modern commercial world that is true, it is that you can get a "square deal" more easily from an admitted sinner than you can do business with a confessed saint.

PUBLIC LECTURE ON PNEUMONIA AND MENINGITIS.

ON Friday evening of next week a public lecture will be given at the New York Academy of Medicine on the results of the work of the New York City Commissions appointed to study pneumonia and cerebrospinal meningitis. This lecture is very properly to be delivered by the Commissioner of Health, Dr. Darlington, and there is no doubt that it will attract significant interest.

These two diseases have in the past few years proved serious foes to the city's health and have added very materially to the mortality record. While cerebrospinal meningitis is only an occasional visitor, it works such fearful havoc when it comes as to make the study of the conditions that predispose to it, the causes that lead up to it, and the methods by which it may be prevented some of the most interesting problems of municipal health. Pneumonia, like poverty, is always with us, and unfortunately, like poverty, seems in recent years to be on the increase and counts its victims in ever greater numbers. What was known up to a recent date and what has been recently learned about these two diseases is so important as to be sure to attract attention.

The idea of giving public lectures to which also those who are not members of the medical profession are invited is especially commendable. The New York Academy of Medicine deserves the thanks of the community as well as the medical profession, for breaking away from old-time traditions in providing such lectures, and it is to be hoped that no effort will be spared to make

them a success. There is no reason why many persons who are deeply interested in scientific medical problems, but have no means of readily obtaining up-to-date information with regard to them, should not find the opportunities thus provided something that fills a long-felt want. A large number of the general public are sure to be interested in medical problems. Curiosity with regard to matters of public health particularly has hitherto had no adequate means of satisfaction, and the consequence has been that utterly groundless, non-scientific notions have frequently been accepted as true and established.

Most people under present circumstances derive their medical information from the newspapers and from such public announcements with regard to supposed progress in medicine as are made by those pecuniarily interested in having certain forms of information spread abroad. The consequence has been a hopeless state of misinformation on the part of even intelligent people with regard to medical problems. Before his death Virchow used to say that most of the popular notions with regard to medicine were still founded on the old humoral pathology. Certain it is that changes in blood and in bile and in certain other secretions are, at least in popular language, supposed to be the basis of most of the ills to which flesh is heir. Most of the ideas with regard to cellular pathology and the germ theory that have crept into the public consciousness have come from interested advertisers, and the consequences can readily be understood.

The policy of the medical profession in the past has been to some extent opposed to the public expression of progress in medicine or the publication in channels through which it would readily reach the general public of recent information with regard to important medical problems. We are glad that this policy is now recognized as distinctly a thing of the past and that the most important medical body in New York sets the seal of approval upon the opposite policy by having public lectures in its home and under its auspices. The initial lecture of the course could come from no one with better grace than from the city's commissioner of health. The subject is eminently fitting, and Dr. Darlington is sure to make a suggestive presentation of it. We have no doubt that the interest awakened by this first lecture will secure an increased attendance at those which are to follow.

MODERN IDEAS ON THE TREATMENT OF PNEUMONIA.

As a necessary complement to the recent investigations into the etiology of pneumonia, the present conception of the proper treatment of this disease merits careful attention. This fact was emphasized at the discussion on the prophylaxis and treatment of pneumonia, held at the New York Academy of Medicine, Dec. 11, 1905, and participated in by some of the leading clinicians of this city and Philadelphia.

Pneumonia has alarmingly increased during the past decade, until now in some of the large cities its mortality exceeds that from tuberculosis. What is the profession doing to prevent the spread and to combat the onslaughts of this promising rival of the white plague? The importance of recognizing the communicability of pneumonia has already been realized by health boards and is beginning to dawn in the mind of the practitioner.

The result of the recent bacteriological researches furnish data for a more intelligent prophylaxis than has prevailed in the past. James M. Anders ably handled this phase of the subject and referred to the following important predisposing causes of pneumonia, namely: Degenerative conditions of the cardiovascular system, indoor confinement, age, poor ventilation, inappropriate clothing, alcoholism, the "strenuous life," failure of sputum disinfection and nasopharyngeal catarrh. The increased incidence of pneumonia in the months between December and May and the greater vulnerability of the aged, indicate the importance of tonic treatment of the latter during this period. Other essentials in the prophylaxis are an educated public opinion, the control of street cleaning by public health authorities, and the recognition of the fact that pneumococci are found in normal sputum, and that these may gain in virulence by passage through other individuals.

A comparison of the methods of treatment prevailing in four of the largest hospitals of New York, by Henry P. Loomis, reveal a general uniformity of treatment. It is interesting to note the marked difference of attitude in the management of the heart. For systolic weakness, alcohol, digitalis and strychnine are generally relied upon. The use of strychnine is now universal, never being followed by depression, as is alcohol. It is especially indicated when whisky is no longer able to hold the heart, and in pulmonary edema with cyanosis. Digitalis is

rarely used, but in the Presbyterian Hospital it is employed in the form of the tincture in doses of $\text{m} \times$ every four hours. In Roosevelt Hospital one of the routine cardiac stimulants is the use of a saline enema of eight ounces, every four hours. Dr. Loomis has found that in the early stages of the invasion the shock to the nervous system is intense, and that this may be reduced by one or two doses of morphine hypodermically. He believes that the amount of alcohol should be cut down, and that even in intense alcoholic cases the hypodermic use of strychnine is superior to it. The liquor ammonii acetatis may largely replace alcohol. He also points out that patients may be seriously harmed by promiscuous drugging.

Hobart Amory Hare believes that little stress should be laid on the statistics of the mortality of pneumonia in the hospitals. No plan of treatment is suitable for all cases. In the face of an overwhelming toxemia no treatment is of any avail. The average case of pneumonia requires aid at the critical period, and most cases get better in spite of treatment. Alkaline diuretics and hepatic stimulants are important aids in combating the toxemia. The physician should remain the passive spectator and should give drugs only when necessary. Digitalis does much less for the failing heart in pneumonia than in valvular disease. It is not very efficient in over-fatigue and toxemia of the heart muscle. Only a physiologically tested sample of the drug should be used. The employment of the circulatory depressants in the early stages of pneumonia is rarely necessary. The precordial ice-bag and the use of Dover's powder serve the indication much better and with less danger. In the later stages of the disease, in order to overcome the reduction in the vascular tone, atropine is exceedingly valuable. Many cases of death are really a vascular death, the patient bleeding to death into his own blood-vessels, owing to the lack of the *vis à frontis*. Expectorants are mostly useless in pneumonia.

J. Madison Taylor believes that the early use of saline solution increases the patient's chances. A convenient method of employing the saline therapy is to administer lemonade containing ten grains of sodium chloride to the glass.

That a single pneumococcus lodged on the wall of a pulmonary alveolus is capable of causing by its irritating effect the incidence of pneumonia was the view advanced by Dr. Andrew H.

Smith. The importance of catching cold as an etiological factor in pneumonia was dwelt upon, together with the reflex vasomotor mechanism involved in this process. A true prophylaxis should take account of this nervous element in the production of pneumonia, and the treatment must remain symptomatic until the true antidote is discovered.

The keynote of the entire discussion in which other able observers took part was that excessive and routine drugging is to be avoided, that each case of pneumonia requires vigorous stimulation when the occasion arrives, and that expectorants are rarely necessary.

ECHOES AND NEWS.

NEW YORK.

Staten Island and the New Tuberculosis Hospital.

—The Municipal Art Commission has approved the plan for a two million dollar tuberculosis sanitarium on Staten Island. The work of carrying out the plans can now proceed in the regular manner, as provided in the charter. The people of Staten Island, it is reported, are determined to perform the foolish trick of trying to fight the erection of a tuberculosis hospital in Richmond Borough, and the Staten Island Chamber of Commerce has appointed a committee of seven to wait upon the Mayor in Manhattan and protest against the plan. The hospital is to be located near New Springville.

Medical Examiner for Department of Finance.

—The Civil Service Commission, on recommendation of Comptroller Grout, last week created the position of medical examiner for the Department of Finance at a salary of \$2,500. This, it is believed, will be the means of saving the city many thousands of dollars in damage suits. Mr. Grout two weeks ago asked to have the position created, and the suggestion met with the approval of the Commission. Heretofore when a person was injured on property belonging to the city, a policeman was detailed to inquire into the nature of the injuries, and the report he made was always accepted. In many instances persons pretended to be more seriously injured than they really were, and consequently suits for damages against the city were frequently "faked." With an official medical examiner this will be done away with.

Hospital Gift.

—William I. Spiegelberg, president of Sydenham Hospital, at 339 East One Hundred and Sixteenth Street, showed last week the proof sheets of the forthcoming annual report of the hospital to Isaac Guggenheim, of 763 Fifth Avenue, who has helped the institution a great deal in the past. Mr. Guggenheim, so Mr. Spiegelberg made known later, was so impressed with the report that he offered \$250,000 toward the erection of a new building, provided the hospital authorities, within a reasonable time, raise an endowment. Mr. Spiegelberg has no doubt that the endowment can be secured. As the Harlem Hospital will move to another section within a few years, it is thought, the usefulness of Sydenham will increase very rapidly on the upper east side. The hospital was established

two years ago with six beds. It now has 86 beds, 70 of which are free. Sixty-two beds were occupied last night. The Sydenham is a public institution. The city gave it an appropriation of \$12,500 last week. Last week the firm of M. Guggenheim & Sons gave \$5,000 to the hospital as a memorial to the late M. Guggenheim, whose son Isaac is. Mrs. Isaac Guggenheim established a maternity in connection with the hospital some time ago. Dr. Robert Kunitzer, second vice-president of the hospital, said that the condition of the gift was that Mr. Guggenheim would double the amount of every initiation fee received from new members. The life member's fee is \$100. Dr. Kunitzer said that it might take two years to get enough members to secure the \$250,000. The money will be forthcoming as soon as members are secured. Mr. Guggenheim gave \$20,000 on Saturday for current expenses.

PHILADELPHIA.

Medical Club Entertained Eminent German.—Dr. Carl von Noorden, of Frankfort-a.-M., Germany, was entertained by the Medical Club of Philadelphia, Wednesday, December 20, 1905. The club has a membership of 700, and most of the prominent members were present. The toasts flowed almost as freely as some other substances found there.

Section on General Medicine of the College of Physicians of Philadelphia.—This section met on December 11, 1905. The scientific program was opened by Dr. F. J. Kalteyer, who exhibited a patient presenting certain "unusual features of Angina pectoris." Dr. W. E. Hughes read a paper entitled "The Clinical Significance of Precordial Pain. Dr. D. L. Edsall read a paper on "Clinical Observation on the Effects of X-rays in Clinical Medical Diseases." Dr. J. A. Scott read a paper on "A Clinical Report of Cases of Typhoid Fever with Suppurating Complications, with Especial Reference to the Changes in the Blood." Dr. J. M. Swan reported "A Case of Paratyphoid Fever."

Cocaine Dispensers Arraigned.—Several individuals, alleged sellers of cocaine, and also several druggists and their clerks, have been brought before magistrates for a hearing. The police have discovered several dens where the drug could be obtained. The habitués in many instances needed only go to certain drug stores in the sections of the city, give certain phrases or words and lay down the money to obtain the cocaine. After the police made a raid several weeks ago these shops ceased to sell the drugs and the habitués were nearly driven to desperate straits for want of the medicine, but they soon heard of similar shops in Camden, where they went to relieve their sufferings.

The Philadelphia County Medical Society.—The meeting of this society was held on December 13, 1905, when a symposium on disorders of the circulatory apparatus was given. Dr. Alfred Stengel read a paper on "Arteriosclerosis as a General Disease." Dr. Wm. H. Welch, of Johns Hopkins University, Baltimore, gave a talk on "The Relations Between Cardiac and the Renal Disease and Arteriosclerosis." Dr. Judson Daland read a paper on "Myocarditis and Degeneration of the Myocardium Independent of Arteriosclerosis." Dr. H. A. Hare read a paper on "Remarks on the Cardiovascular Disease, with Reference to Treatment." The discussion was opened by Dr. J. C. Wilson and continued by Dr. G. E. de Schweinitz, Dr. W. B. Stan-

ton, Dr. John H. Musser, Dr. S. Solis Cohen and Dr. A. O. J. Kelly.

The Pathological Society of Philadelphia.—The meeting of this society was held December 14, 1905. Dr. Allen J. Smith showed card specimens illustrating retrograde changes in myomatous uteri. Dr. Steven E. Tracy showed specimen of ectopic pregnancy with bilateral suppurating salpingitis and cystic adenomyoma of the uterus. Dr. P. B. Bland showed a desmoid tumor of the anterior abdominal wall; chorio-epithelioma; extensive cystic disease of the uterine cervix; fibromyomata of the uterus in gross serial sections. Dr. C. Y. White showed cystic tubes and ovaries from a bison. Dr. W. M. L. Coplin showed a new method for card indexing microscope slides. Dr. M. P. Ravenel and Mr. J. Reichel, by invitation, read a paper on "Negri Bodies in Rabies." Dr. Alfred Gordon read a paper on "Mast Cells in Rabies." Dr. E. S. Allen and, by invitation, Mr. C. C. Corson read a paper on "The Transformation of Uterine Myomata into Fibromata." Dr. Brooke M. Anspach read a paper on "A Study of Elasticity in Parous and Non-Parous Uteri." Dr. Samuel Leopold read a paper on Primary Genito-urinary Tuberculosis."

CHICAGO.

Appointment of Civil Service Board.—Drs. Hugh T. Patrick, Frank Billings, John B. Murphy, Harold N. Moyer and Frank P. Norbury have been selected by the Civil Service Commission as a board to prepare the questions and grade the papers in examinations for assistant physicians in the State hospitals for the insane.

Military Surgeons at Clinic.—The surgeons of the Illinois National Guard were given instruction at Rush Medical College recently in field surgery by Surgeon-General Nicholas Senn, Dr. F. S. Stanton, Major Charles Adams, Lieutenant W. Howard and Dr. D. W. Graham. Dr. Senn entertained the surgeons at a banquet later.

Suit Against State Board of Health.—A suit against the Illinois State Board of Health in the Circuit Court of Cook County has been begun by E. M. Harrison, who holds a diploma which was issued in 1903 by the now defunct Dunham Medical College. The litigation in this case is to compel the board to issue him a certificate without examination. The action is based on Section 2 of the Medical Practice Act, which provides that the board may issue certificates to graduates of Illinois medical colleges in good standing without examination.

Ottawa Tent Colony.—The new \$15,000 structure of the Ottawa Tent Colony, an experiment in the outdoor treatment of tuberculosis started a year ago under the auspices of the Illinois State Medical Society, was dedicated December 12. Nearly five hundred physicians and persons interested in the cure of the disease were present from Chicago and the principal towns of the State. The principal address was delivered by Dr. Frank Billings, Chicago. Dr. Harold N. Moyer acted as chairman. Speeches were also made by Dr. J. W. Pettit and by Dr. George A. Zellar, superintendent of the Hospital for Insane at Peoria.

Illinois Training School for Nurses.—This school has rounded out twenty-five years of existence as a corporate body. Many of the charter members are still on the Board of Directors. From among its graduates nine are superintendents of other training institutes in Chicago. The school was the first

to install the three-year course and also to affiliate with smaller schools, that their graduates might attain the standard demanded for prospective State registration. During the last year the largest number of nurses in the school was 156 in November; the smallest, 138 in August. December, 1904, there were 12 graduates and 121 pupils; last month, 22 and 118, respectively.

To Abate Smoke Nuisance.—Health Commissioner Whalen favors an amendment to the smoke and boiler inspection ordinance to permit the Health Department to sue smoke violators. The proposed amendment was recently voted down, but Dr. Whalen will try to have it placed in the amended ordinance to be submitted to the entire judiciary committee. He has forty-five sanitary inspectors, who could note violations of the smoke ordinance in their regular round of duties. The present smoke bureau has only four inspectors. This small force cannot hope to note all violations, and the Commissioner's plan is to use the forty-five inspectors for this work and to allow the Health Department to bring suits against violators.

GENERAL.

State of New Jersey Board of Medical Examiners.

—Dr. William H. Shippis has been elected acting secretary of the State Board of Medical Examiners of New Jersey, vice Dr. E. L. B. Godfrey, secretary, granted leave of absence until May, 1906. All communications should be addressed during this period to Dr. William H. Shippis, Bordentown, N. J.

Sanitary Committee.—President Roosevelt last week issued an executive order appointing a committee, consisting of Surgeon-General Robert M. O'Reilly of the army; Surgeon-General P. M. Rixey of the navy, and Surgeon-General Walter Wyman of the Public Health and Marine Hospital Service, to inquire into the sanitary conditions in Government offices and workshops, with a view to preventing the spread of tuberculosis.

American Association for the Advancement of Science: Section K, Physiology and Experimental Medicine.—The sessions of Section K of the American Association for the Advancement of Science, which will be held on the morning and afternoon of January 1, promise to be of unusual interest. The morning session will be opened by an address by the vice-president, Dr. William T. Sedgwick, on "The Experimental Method in Sanitary Science and Sanitary Practice." The remainder of the morning session and all of the afternoon will be devoted to a symposium on "yellow fever and other insect-borne diseases." Yellow fever in its various phases will be discussed by Drs. J. H. White, Quitman Kohnke, James Carroll and H. A. Veazie. It is expected that Drs. Edmund Souchon, Surgeon-General Walter Wyman and Col. W. C. Gorgas and other specialists will also take part in the discussion. Dr. William S. Thayer will read a paper on "The Problem of Prophylaxis Against Malaria in the United States," Dr. Henry B. Ward will consider filariasis and trypanosome diseases, Dr. Charles W. Stiles will present a résumé of facts bearing on the principles involved in the transmission of disease by insects, and Dr. Gary N. Calkins will discuss the protozoan life cycle. Dr. L. O. Howard will talk on mosquitoes that carry disease and Mr. Henry Clay Weeks, Secretary of the American Mosquito Extermination Society, will present the practical side of mosquito extermination.

Annual Meeting of Southern Medical College Association.—This association held its annual meeting December 11 at the Seelbach Hotel, Louisville, Ky., under the presidency of Dr. Christopher Tompkins, of Richmond, Va. More stringent rules applying to the admission of students were adopted. Ten of the fourteen colleges of the association were represented. President Tompkins read an address on "The Advancement in Preliminary Educational Requirements." The suggestions set forth in the address, after considerable discussion, were resolved in a motion which was unanimously passed. The motion provided that from the present time until January, 1908, an applicant for admission to any college of the association must have had two years in a recognized high school, or a certificate from an acknowledged preparatory school, besides a grammar school education. After January 1, 1908, the nine requirements for admission will be a high school diploma, or a certificate of graduation from a recognized preparatory school, and the courses at the college shall be for four years of seven months each instead of six months, as is the case with some schools at the present time. Since the last meeting five colleges not in the association have either filed applications for membership or will do so within a short time. Two of the colleges which have filed applications are the Medical Department of Epworth University, Oklahoma City, Okla., and the Medical Department of the Southwestern University, Dallas, Tex. The other three colleges are in Georgia and Maryland. The following officers were elected for the ensuing year: President, Dr. Christopher Tompkins, Richmond, Va., re-elected; Vice-President, Dr. T. H. Fraser, Mobile, Ala.; Secretary and Treasurer, Dr. G. C. Savage, Nashville, Tenn., re-elected. Executive Committee, Dr. J. S. Kane, Nashville, Tenn.; Dr. W. B. Rogers, Memphis, Tenn., and Dr. Stuart McGuire, Richmond, Va. The next meeting of the association will be held at the same time and place (Baltimore), as of the Southern Surgical and Gynecological Association. The Southern Medical College Association was organized in Louisville, November 16, 1892, for the purpose of establishing a preliminary educational requirement among the medical colleges throughout the South, and for increasing this requirement from time to time. The work being done at present by the Northern and Southern medical college associations, together with the Educational Committee of the American Medical Association, is in the direction of procuring uniformity in State medical laws and reciprocity in State Boards, all of which probably will be accomplished within the next decade.

OBITUARY.

Dr. JAMES ELLIOTT, of Newark, N. J., for fifty-six years a practising physician at that place, died last week at his home, 56 New Street, aged eighty-eight years.

Dr. ELWIN REYNOLDS died at his home, 129 Lafayette Avenue, Brooklyn, last week. He was born in Warwick, N. Y., fifty-nine years ago. He was one of fourteen children of Dr. Abram Lockwood Reynolds, an Orange County physician. For twenty-two years he was chairman of the medical staff of the Brooklyn Home for Consumptives. He was a member of the American Medical Association, the New York State and the Kings County Medical Societies, and the Medicolegal Society.

Dr. THEODORE DEECKE, pathologist, chemist and also a writer on medical subjects, more particularly those relating to the brain, died at his home in Utica, last week, after three years illness. He was sixty-nine years old. For seventeen years he was pathologist at the

Utica State Hospital, during which time he brought his department up to a high state of efficiency. From time to time he had figured prominently as an expert witness in criminal trials in different parts of the country.

Dr. EZRA HERBERT WILSON, a well-known bacteriologist, died last Tuesday in his forty-eighth year at his home Williamsburg, N. Y. He was born in Port Jefferson, L. I., and was graduated from the College of Physicians and Surgeons in 1882. He became connected with the Hoagland Laboratory as associate to Surgeon-General Sternberg of the United States Government, and later succeeded him as director of that institution. For four years he was connected with the old Brooklyn Department of Health, and as a surgeon of the old city of Brooklyn he manufactured all the anti-toxin that was used.

Dr. MORTON GRINNELL died last week at his home at Beaver Brook Farm, Milford, Conn., in his fifty-first year. He was born in New York and was the son of G. B. Grinnell, who was a merchant and banker. Dr. Grinnell was graduated from Yale in 1875, and four years later from the Bellevue Hospital Medical School. He studied medicine in Europe for a year or more and then settled down in this city to practice. Fifteen years ago he retired and went to Milford to live. After his retirement he wrote a couple of books on nature subjects. One of them was called "Neighbors of Field, Wood and Stream." He suffered an attack of pneumonia some weeks ago and this left his heart very weak.

Dr. NATHAN BOZEMAN, a surgeon well known in this country and in Europe, died last Saturday morning at his residence, 162 East Seventy-first Street, New York, after a week's illness following a stroke of apoplexy. He was in his eighty-first year. Dr. Bozeman was born in Butler County, Alabama, and was educated in the University of Louisville. He first practised in Montgomery, Ala., achieved a reputation as a surgeon, and became known as a writer on gynecology. Later he was called upon to treat cases in London, Edinburgh, Glasgow, Dublin and Paris. For several years he owned a private hospital in New Orleans. Dr. Bozeman was in the Confederate service as a member of the Examining Board of Army Surgeons.

While dressing last Sunday morning Dr. WM. SMITH FORBES, of Philadelphia, was seized with an attack of heart failure, from the effects of which he soon died. He had been complaining for some time, but after his lecture the preceding Monday he was seized with symptoms referable to the heart; some little time afterward he had another and a third on Friday, from each of these he rallied, but finally succumbed to the attack on Sunday morning. Dr. Forbes held the chair of anatomy at the Jefferson Medical College since 1886. He graduated from the above-named college in 1852, and was also an alumnus of the University of Pennsylvania. He served as resident in the Pennsylvania from 1853 to 1854; Dr. Forbes served with the British in the Crimean War, after which he was offered a directorship in the British army, but refused the offer, not desiring to renounce his allegiance to the United States. After his return from the Crimean War he established a private school of anatomy in this city, this he conducted until the outbreak of the Civil War. In 1879 he was made demonstrator of anatomy in the Jefferson Medical College. In 1863 he drew up the anatomical act of Pennsylvania and amended it in 1883. At the graduation exercises of the Jefferson Medical College last June the student body presented the college with the portrait of Dr. Forbes and the alumni of the university presented him with a loving cup.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, December 7.

PARLIAMENT AND THE MEDICAL PROFESSION—THE TREATMENT OF TUBERCULOUS CHILDREN—BARBERS AND SURGEONS—ALLEGED OPERATION ON THE KAISER.

THE change of Government will have as a consequence a general election. The Liberal party which is now in power has never shown much sympathy with the problems of public health. Sir Henry Acland, Burdon-Sanderson's predecessor at Oxford, who was an intimate friend of Gladstone, often tried to interest him in sanitary questions, but without the least success. The Liberal party is largely made up of men to whom the *arbitrium popularis auræ* is the sole standard of right and wrong in politics. In its heterogeneous constitution, too, it includes faddists of all kinds who look upon the medical profession and the scientific movement with suspicion. The consequence is that practically all legislation for sanitary advance has come from the Conservatives. But, in truth, neither party really cares for anything that concerns medicine, for the simple reason that doctors as a class count for little or nothing in politics. They are not united or organized and hence cannot as a body influence votes. The British Medical Association is making an effort to secure a larger Parliamentary representation for the profession, but it is to be feared that it will accomplish little or nothing. Its membership includes only about one-half of the profession, and it is hardly likely to find any men of sufficient standing within its fold who would consent to be the delegates of what is practically a small caucus. Outsiders would, of course, resent dictation from a body which at present is animated solely by motives that can only be called parochial. Even if the association were to find candidates it would still have to find constituencies, and the British electorate which boasts itself free and independent would certainly not accept as a Parliamentary representative a man who was a doctor first and a politician only by second intention. The political impotence of the profession is illustrated by the fate of a Medical Committee which was formed among the doctors in the House two or three years ago. They met, I believe, only once; at any rate the committee was virtually stillborn. It was found, as might have been anticipated, that the men would not work together, and it must be said that none of them showed any living interest in the existence of the committee. There are some two and twenty candidates for the suffrages of the voters at the coming election, but with very few exceptions they are men of no particular professional standing or have won such fame as is their portion in other fields than politics. Thus there is Sir Arthur Conan Doyle, the creator of Sherlock Holmes, who has long ceased to take an active interest in medicine; there is Sir George Scott Robertson, who won distinction in India as a diplomatist and administrator, and there is Dr. Rutherford Harris, best known as Secretary to Cecil Rhodes. Among the others are Sir Walter Foster, well known formerly as a physician, but now wholly given up to politics. The only man whom the whole profession would acknowledge as a worthy representative of medical science is Sir Michael Foster, the eminent physiologist. I doubt, however, whether he would like to be regarded as a champion of the medical profession. He stands for pure science, striking the stars with his

lofty head and looking at the difficulties of the struggling mass of practitioners with detachment, if not with complete indifference. Among the candidates is Dr. E. M. Crookshank, sometime professor of bacteriology at King's College, but best known as one of the great twin brethren of medicine (the other being Dr. Charles Creighton), whom the antivaccinists claim as their own. Sir John Tuke as a distinguished expert in mental diseases would find a useful sphere of activity in the House of Commons if he were to use his scientific knowledge for the treatment of that excitable body. As a representative of medicine, however, he has not proved very effective. His intentions are excellent, but his oratory does not impress the House. Of the rest there is nothing to say at present; possibly they may number among them some mute inglorious Bright or Gladstone, but they have not revealed themselves. How many of them will find seats it is impossible even to conjecture. Probably all but half a dozen or so will be left outside the gate, to gaze, like the Peri, at the paradise within. There are several questions of importance to the profession to be dealt with; but as Mr. Balfour, with his enormous majority has done little or nothing in regard to such matters, it is pretty safe to prophesy that the new Government will not be able, even if it be willing, to do more.

At a meeting of the Council of the Invalid Children's Aid Association held the other day, Sir William Broadbent pointed out that, while consumption had diminished year by year for the last thirty years, there had been no corresponding diminution in the death rate of the tuberculous affections specially incident to infancy and early childhood—meningitis, peritonitis, tabes mesenterica, disease of spine, bones and joints, and scrofulous glands. On the contrary, these had increased. He had endeavored to obtain some idea of the number and distribution of the children suffering from tuberculosis in London. During the years 1901-3, 6,391 children under five died from different forms of tuberculosis, of these 2,894 died before they were a year old, the mortality decreasing rapidly with every successive year of life. Tuberculous meningitis appeared to be at every age the most fatal form of the disease, carrying off 861 children in the first year of life, 742 in the second, 391 in the third, 303 in the fourth, and 184 in the fifth. Next to it in the first year of life came tabes mesenterica, with a death roll of 694, and tuberculous peritonitis with 414, dropping respectively to 170 and 176 in the second year and 46 and 72 in the third. Pulmonary tuberculosis was said to be responsible for 237 deaths under one year and 234 under two years, becoming after that age the most fatal form of tuberculosis, with the exception of meningitis. Tuberculous disease of the glands, bones and joints are classed under one heading, and accounted for 688 deaths in the first year of life, 429 in the second, 161 in the third, dropping to 113 in the fourth and 85 in the fifth. On public grounds, said Broadbent, those deaths were scarcely to be regretted. If a child contracted tuberculosis at an early age it was probably susceptible, or the unhealthy influences surrounding it were strong, and for its own sake death was preferable to a life of suffering; in the interest of the community and of the race the elimination of a burden and source of weakness was desirable. The association could do little or nothing for cases of true pulmonary consumption which came under its cognizance beyond sending early cases into the country. After pointing out how far France was ahead of England in the matter of provision for tuberculous children, Broadbent

said that in England an excellent beginning had been made in a home on the south coast which was under the control of the Metropolitan Asylums Board and had been open for nineteen months. The results so far appeared to be astonishingly good. Tuberculous disease of the spine, bones, and joints, and of glands, constituted a large proportion of the cases taken charge of by the association. There were 1,476 deaths in that class. During the last five years 1,736 cases of surgical tuberculosis had been placed on the books, and out of 1,209 new cases referred to it last year 502 were those of children suffering from different forms of surgical tuberculosis, including 89 of glands, while 68 were said to be phthisical. He went on to say that it was by amelioration of surroundings that prevention might be favored and that suffering might be alleviated, but recovery must be sought by removal from the influences which had brought on the disease. Primarily it was the duty of municipalities to see that the housing of the poor were not, from imperfect water supply, sanitary arrangements, negation of sun and air, direct causes of disease. In not one of those particulars did the housing of the poor comply with the requirements of health and decency. In regard to overcrowding, which was one of the chief causes, both direct and indirect, of tuberculosis, the responsibility was divided between the municipal authorities and the occupants. There were regulations as to floor space and cubic feet of air to each inhabitant, but in some parishes these were not enforced. The tenants of tenements on their part, especially in bed times or cold weather, constantly tried to evade the regulations. A terrible difficulty arose in the case of large families. The greatest safeguard against tuberculosis in early life and against infantile mortality generally was that the child should be suckled by the mother. There was no substitute for that within the reach of the poor. The bottle was, perhaps fortunately, when the breast milk was not available, the best means of keeping an infant quiet, and to warm milk cost less trouble than the preparation of other forms of nourishment; but the milk was usually of indifferent quality, the bottle was not properly cleansed, and was often furnished with an india rubber tube which was never sweet and was infested with microbes. The so-called comforter, a teat constantly seen in the mouths of infants of all classes, was an invention of the devil; was a fraud on the unhappy child, led to waste of its digestive secretions, and picked up every kind of filth when it fell on the floor. If there was consumption in the house it was the readiest and easiest of all ways of conveying the tubercle bacilli to the child. Turning to what was being done for the victims of tuberculous affections of the spine, or the hip and other joints, and of bones, he said the Alexandra Hospital for Hip Disease had 65 beds in London, 20 at Clandon, in Surrey, 12 at a convalescent home at Painswick. Only acute and early cases were admitted, though once in the hospital they were kept there indefinitely. The number received, therefore, was small—only 173 children were under treatment in 1904—but the results were excellent. Next came the Children's Hospital for the treatment of hip diseases at Sevenoaks, with 36 beds; and there, again, only early cases were admitted, which, however, were kept as long as necessary. At Cheyne Hospital the more advanced cases, both of hip and spinal disease, were admitted and kept indefinitely. Finally, at all the general and children's hospitals in London those cases were treated as out-patients and admitted when necessary for operation. At the seaside they had the Victoria Home, at Margate, for cases with open

wounds, where the children were kept as long as there was hope of improvement, the Royal Sea-Bathing Hospital and some small nursing homes which could only accommodate a few children. There was also a home at Herne Bay for convalescent cases under the Metropolitan Asylums Board, and in London the Poor-law infirmaries admitted the advanced cases and kept them as long as necessary. There was no special provision for spinal disease, and it was seldom possible to obtain admission anywhere for an incipient case, whether of spinal or joint disease, without a long wait, which often compromised the chance of recovery and resulted in deformity, which might have been prevented.

An interesting ceremony, reminiscent of the fraternity which existed for centuries between surgeons and barbers, took place on December 5 in the hall of the Ancient Guild of Barbers in the City of London. At a Court of Assistants then held, Mr. John Tweedy, President of the Royal College of Surgeons of England, was admitted to the freedom and livery of the company. The list of Masters of the London Guild of Barber-Surgeons from the year 1308 is still extant. When the union between the crafts was dissolved by Act of Parliament in 1745, the Barbers' Company retained possession of the old hall, together with the corporate property, plate, pictures and records, while the surgeons were made a separate company. About the end of the eighteenth century this body inadvertently committed hara-kiri by a violation of its constitution. In a year or two it rose from its ashes as a college, and thus the last link connecting surgery with trade was broken. The Barbers' Hall is an interesting place in itself. It was built by Inigo Jones in 1636, and by good fortune escaped the great fire of London in 1706. Its walls are adorned with historic pictures of Vandyke, Sir Peter Lely, Sir Joshua Reynolds and Gainsborough, but the barbers' chief artistic treasure is Holbein's famous picture of Henry VIII. giving a charter to the barber-surgeons. The figures are mostly portraits of the leading physicians and surgeons of that day. The company has also some very choice old plate, notably the Tudor Grace Cup and Cover (plate mark, 1519), presented by Henry VIII.; the Royal Oak Cup, presented by Charles II. in commemoration of his escape at Boscobel, and a large silver punch bowl given by Queen Anne. The admission of the President of the College of Surgeons was made the occasion of a "city feast." In responding to the toast of "The Junior Livery Man" Mr. Tweedy spoke with pride and pleasure of his association with the guild and the hall which had once been the home of so many of his illustrious predecessors.

Rumors have been flying about the press to the effect that a prominent London specialist in ear diseases has recently been summoned to Berlin in order to operate on the Kaiser, whose left ear has been giving him trouble. It is said that the Emperor, who has been partially deaf throughout his life, caught a bad cold, which was followed by neuralgic pains and suppuration. The German doctors having failed to give relief, and English surgeon was called in. This is the statement which I have myself seen in several English provincial and one or two London newspapers, and in some continental papers, such as the *Journal des Débats* and the *Heraldo de Madrid*. As the Kaiser opened the Reichstag in person after the date of the alleged operation and has since been as copious and vigorous in speech as usual, it is obvious that he could not have undergone any serious operative procedure. There appears, however, to be some mystery in the matter, for one hears that Mr. C. A. Ballance, of St.

Thomas' Hospital, who has gained some reputation here in connection with the mastoid operation, recently paid a visit to Germany and has come back bringing with him the spoils of the conqueror in the shape of a minor decoration of some kind. Some time ago he did, it is said, perform the mastoid operation successfully on a German princess and this may be the reason of the decoration. It is, to say the least, improbable that Mr. Ballance should have been called in to operate on the Emperor. Many of us remember the indignation caused in the Teutonic world when Morell Mackenzie was called to the Emperor Frederick. Our relations with Germany have not become friendlier since then, and if the Kaiser, who is before all things a German, had given himself into the hands of an English doctor, such an illustration of free trade would have been almost enough to cause a rebellion. Besides, in this instance, he would have gone out of his way to inflict a wanton insult on the medical profession of his own country, as there are several men in Germany who are leading authorities on the surgery of the ear.

SOCIETY PROCEEDINGS.

NEW YORK OBSTETRICAL SOCIETY.

Regular Meeting, held October 10, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Fibroid in the Posterior Wall.—Dr. J. N. West presented a uterus with tubes and ovaries, showing a large fibroid in the posterior wall. Both tubes were distended with pus and there was an abscess in one ovary. There was also a papillary carcinoma growing from the endometrium over the region of the fibroid. The specimens were removed from a patient fifty-two years of age, who had been bleeding irregularly and whose abdomen had been increasing rapidly in size.

Fibroma of the Ovary.—Dr. G. H. Mallett presented a fibroma of the ovary he had removed from a patient forty-eight years of age, who had noted a slow increase in the size of the abdomen for seven years. The menstruation had been rather profuse for four years, making the diagnosis of a pedunculated uterine fibroid probable before the operation revealed its true nature.

In the discussion Dr. H. J. Boldt stated that he did not consider atypical bleeding in fibroids to be diagnostic of malignant growth, but that rapidity of growth was sufficient reason for making a probable diagnosis of degenerative changes. He thought in Dr. West's case the malignant growth was an independent process simply coexisting with the fibroid.

Dr. G. T. Harrison thought Dr. West had considered a rapid growth after the menopause in a tumor that had been quiescent, and the atypical bleeding under such circumstances were suggestive of malignancy. He considered these tumors normally to undergo retrograde metamorphosis at the time of the menopause and, if they did not, some complication was present.

Dr. A. F. Currier suggested that Dr. West's case pointed to the possibility that such degenerative changes were more apt to occur in submucous than in subperitoneal fibroids.

Dr. Mallett spoke of the possibility of confusing with pregnancy cases of fibroids in which the uterus was filled with a growth, as in Dr. West's case. He had seen two cases in which the diagnosis was

still uncertain even after the abdomen had been opened.

Dr. A. Brothers stated he had not found ascites present in three ovarian fibroids he had seen in the past few years and does not consider its presence a valuable diagnostic sign. He cited a tumor of this kind with a twisted pedicle that had simulated a movable kidney.

Uterine Myofibromata and Visceral Degenerations.

—Under this title Dr. H. J. Boldt read the paper of the evening. Forty-seven per cent. of his cases in private practice of myofibromata had some circulatory disturbance. *Class 1.*—Five patients had dyspnea on exertion, also a small rapid pulse with arrhythmia. There was moderate hypertrophy of the right ventricle. The urine showed albumin and casts on one occasion. *Class 2.*—One patient with orthopnea and irregular and intermittent pulse; increase of dulness over the entire cardiac area; hepatic dulness slightly increased; albumin and casts in the urine. *Class 3.*—One patient had an arrhythmic, hard pulse, with occasional attacks of angina pectoris. In the urine there was a trace of albumin and some granular and hyaline casts. *Class 4.*—Nine patients had a rapid pulse, from 100 to 128 beats a minute, which on sudden exertion increased from 10 to 20 beats; the pulse was small and easily compressible. All the patients were easily fatigued on exertion. The urine was normal. *Class 5.*—Twenty-one patients complained of no symptoms referable to the heart, but the pulse was small, of low tension, occasionally irregular, from 86 to 110 beats a minute. Pain on pressure over the second sterno-intercostal space was noted five times, associated with pain on pressure over the apex four times. Pain on pressure with the point of a finger over the apex alone was observed nine times. There was a trace of albumin in the urine three times, associated with occasional hyaline and granular casts twice. There was no appreciable change in the heart area in any of these cases. Of thirty-four of these cases in which cardiac changes had been diagnosed, five died after operation. Of the patients operated upon five did not have bleeding as an indication for operating.

A careful review of the literature showed a relation between these tumors and degenerative changes in the heart and other circulatory changes that is sufficiently accepted by competent observers to cause us to consider these tumors dangerous to life from other than degenerative changes in the tumors themselves. In all instances of death following his operations during the past twenty years in which an autopsy was permitted, some degenerative change was always found in the heart muscles whether the diagnosis of a cardiac lesion had or had not been made before the operation and whether or not the neoplasm had given rise to metrorrhagia or menorrhagia. While the size of the tumor, he says, does not bear any positive relation to the degenerative changes in the heart muscle, it must be admitted that such changes are more likely to be present if the tumors are of large size, and especially if hemorrhage has been a prominent symptom. His practical deductions are that especial care in regard to hygiene and diet is necessary in patients who have these tumors, and that cardiac and renal changes, unless hopelessly advanced, are rather indications than contradictions for their removal.

Dr. Le Roy Broun also read a paper upon this subject, in which he first referred to three cases

of Wilson, of Birmingham, without hemorrhages, but with marked signs of cardiac disturbance. In two of these cases of which subsequent records were obtained, marked improvement followed the removal of the tumors. He also related the history of a case of Dr. Ewing, of Nashville, that had been under observation for years without the presence of any physical signs referable to the heart before the development of the uterine fibroid. Seven years after the presence and growth of the tumor had been noted without hemorrhages, heart symptoms developed from which the patient suddenly died. He pointed out a special class of cases in which myocardial changes develop without physical signs of their presence until shortly after the operation shock appears that is out of proportion to the length of the operation or to the amount of hemorrhage. He referred also to Flick's "myoma heart" as being a condition well recognized by continental anesthetists. In New York two anesthetists who use ether told him they had not observed such a condition. Denton, however, he says, told him that his experience leads him to expect severer shock in the removal of uterine fibroids than in any operations of like severity or duration, unless it is for stone in the common duct.

The author gave the statistics of Hofmeyer, in which of 18 cases of sudden death in patients with uterine fibroids, 15 showed brown atrophy of the heart muscles; also Flick's 12 deaths, in 9 of which the heart muscle showed brown atrophy, and in 3 fatty degeneration.

Dr. Baché Emmet, in opening the discussion, said that while many conditions may be present that are often unrecognized through haste or neglect, the study of certain points may magnify their importance. The amplification of these important pathological facts might show the interdependence of the tumors and the heart lesions, but that he thought the experience of those present did not show such a large variety of diseases of the heart and kidneys as the author of the paper would lead one to believe. Long continuance of pain, loss of blood, pressure upon vessels, however, would cause changes in the heart and kidneys, particularly the latter. The modern tendency to early removal he considered especially wise if a coexisting lesion is found.

Dr. H. C. Coe cited a case of sudden death prior to an anticipated operation for the removal of an enormous fibroid. The autopsy showed a dilated right kidney filled with blood. He also recalled two or three deaths from thrombosis. He also thinks the frequency of heart lesions has been exaggerated. The size of tumor and the length of time they have existed may have something to do with the production of such changes, but he thinks in general there is a remote connection between them. The loss of blood would also account for some of these changes. Thrombosis of veins is quite frequent. In writing up the subject of death from visceral disease after laparotomy, he has been surprised to find in the records of the Woman's Hospital so many of these changes, such as brown atrophy, fatty degeneration of the heart and renal disease.

Dr. Joseph Brettauer stated he does not attribute so much importance to the lesions of the heart that coexist with uterine fibroids. He appreciated, however, that loss of blood will develop hemic murmurs and degeneration of the heart muscle. He agrees with the others that heart lesions in women who-

bleed profusely from uterine fibroids rather indicate than contraindicate their removal.

Dr. Brooks H. Wells does not think the presence of a small fibroid in the uterus has any marked effect in producing disease of the heart or arterial system, but that such lesions may be the result of the presence of any large abdominal tumor that changes the dynamics of the circulation. Most myofibromata occur, too, at an age when such cardiac or vascular lesions are common from other causes. Formerly when ergot was extensively used over long periods of time, he had frequently seen brown atrophy of the heart muscle, which he ascribed to ergot poisoning. At the present time it would be necessary to exclude as causes of such lesions rheumatism, sepsis in its many forms, continued anemia and other well known causes of vascular degenerations.

Dr. Clement Cleveland said he had always noted that heart lesions were often present with uterine fibroids and that he had always felt there was some direct relation between them. He thought the facts presented by Dr. Boldt ought to furnish additional evidence in favor of operation.

Dr. J. Milton Mabbott preferred to the opinion of Dr. T. G. Thomas that fibroids in colored women were generally unimportant. His own experience of fourteen years in the Out-Door Department of the New York Hospital had also shown this to be true. He thought in many cases fibroid tumors must exert a reflex influence through the central nervous system and thus have a deleterious effect on the general health, rendering the patient more prone to disease of the arteries, heart and kidneys.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held November 13, 1905.

The President, T. E. Satterthwaite, M.D., in the Chair.

SYMPOSIUM OF CLINICAL PATHOLOGY.

The Relation of Clinical Pathology to Actual Practice.—This paper was read by Dr. L. F. Bishop. The problem, he said, was to make clinical pathology available to the men who actually do the bulk of the practice of the city. Clinical pathology has been too much in the position of a consultation branch rather than a help in every-day work. Too many men call in technical examination only when the case seems obscure or when the patient is very ill. The most obvious solution of the problem which immediately presents itself to any man is that he should take a course in laboratory work and then make a practice of carrying on these observations for himself. But the practice of medicine is too complicated an occupation to allow of the proper atmosphere for laboratory work. There is too much of the social and personal required to allow the combination of the two kinds of work by the general practitioner. The most successful men from the point of view of having satisfactory practices are those who concentrate most of their attention upon the treatment of their patients, keeping other matters in the background. As it is practically impossible for these men to do clinical pathology themselves, they have fallen into the habit of neglecting it, except in cases where it was evidently important, and then sending a specimen or two to an eminent authority for an opinion. The

whole procedure is too expensive to be employed in a routine way with all the patients. To do this for all his patients it is necessary for the physician to obtain the cooperation of men who have neither the height of reputation as pathologists nor attained the position of established practitioners. Such men are found in these days among the graduates of our hospitals, particularly those who have had a pathological service. Up to the present the relation of clinical pathology to private practice has not been satisfactory, and the remedy for this condition of affairs is to be found, first, in disseminating among practitioners the knowledge of the actual value of the findings of the laboratory in indications for treatment; second, in building up the confidence of the profession in the work of the younger graduates of hospitals and in separating routine work, such as these men are perfectly capable of doing, from the higher class of work which calls for the expert knowledge and opinion of established specialists in clinical pathology.

Laboratory Aids in the Diagnosis of Disorders of the Digestive Tract.—Dr. E. E. Smith read a paper with this title. He said he would not attempt a systematic presentation of the whole subject, but rather content himself with a discussion of such isolated facts as seemed of special interest. A word of precaution was necessary in connection with the diagnosis of diphtheria. When the morphology was typical, the diagnosis from serum cultures is quite conclusive. Occasionally, however, it happens that the procedure is uncertain, and he mentioned a case of supposed diphtheria which proved to be one of syphilis. Fortunately in cases such as this we have other aids to diagnosis, namely, the examination of smear preparations made directly from the ulcerated surface. At least two diseases are differentiated from true diphtheria by a competent examination of such material—Vincent's angina, by the recognition of the characteristic fusiform bacilli, and syphilis, by the recognition of the *Spirocheta pallida*. It is as yet too early to say with certainty that this last organism is the cause of syphilis, but so far, at least, a knowledge of its presence seems to afford considerable aid to the bacteriologist. The examination of the stomach contents, either vomited, obtained in gastric lavage, or removed after a suitable test-meal, is of unquestionable value, and should be more generally practised, especially in chronic gastric disease. In this connection Dr. Smith spoke particularly of cases of persistent vomiting due to a condition of acid-intoxication. In these the associated clinical manifestations may be varied, but the occurrence of attacks of vomiting, usually lasting several days, is constant. In such cases the attacks may be prevented by a proper dietary and aborted by the heroic use of alkaline medication. Riegel has emphasized the value of differentiating between the gastric conditions of hyperacidity, alimentary hypersecretion and continuous hypersecretion; the differentiation being made from the amount of stomach contents removed after the test breakfast, its acidity and the absence of gastric secretion during starvation. If the stomach contents, after the test breakfast, is not increased in volume (that is, two ounces or less in quantity) and constantly, or even generally, has an excessive hydrochloric acidity (say 70 or more), the condition is one of simple hyperacidity, usually readily amenable to treatment. If, on the other hand, the volume is increased (and this increase usually carries with it an increased

hydrochloric acidity), it is important to determine whether the increased flow is simply alimentary or is continuous, occurring independently of the stimulating action of food. It is not to be expected that every patient with acid stomach shall be subjected to the searching methods referred to, but in cases where even an approach to scientific exactness is claimed, the analysis of the gastric contents is certainly imperative, even if the clinical symptoms are not pronounced. Most physicians make much of the microscopical examination of patients' stools, but relatively few realize the value of extending the examination further. The microscopical examination of this material, however, may well have a place in routine practice. Examined directly, it rarely shows the presence of pathological admixtures unappreciated by the naked eye, but it may reveal the presence of a parasitic invader, either directly or from the ova. Dr. Smith always examines a portion of the feces stained with iodine, and finds that it is of considerable value in acute or subacute disturbances to know of the presence of the blue-staining butyric acid bacillus, since in these cases antiseptics by the aid of acetozone, both by the mouth and high enema, is of unquestionable value. Special bacteriological examinations are also undertaken with profit, notably the isolation of the typhoid bacillus, which is proving of diagnostic value. A procedure which has attracted much attention of late is the recognition of the so-called occult blood in the feces. By means of a delicate chemical test it is possible to detect blood so modified by the gastrointestinal processes that it cannot be recognized by the microscope. Occult blood has the same significance as visible hemorrhage. It is constantly present in cancer and intermittently in ulcer, while it is absent in gastritis, hyperacidity, hypersecretion and the gastric neuroses. Its occurrence is an aid in the diagnosis of a suspected typhoid, and, aside from the diagnostic value of the test, it is useful in indicating the therapeutic action of remedies in gastric ulcer. Having advocated the examination of bile, where it is available, he said in closing that he would like to emphasize the importance of the histologic examination of all suitable material, whether connected with the alimentary tract or from other parts of the body. Its diagnostic value is at times unexpectedly considerable. Thus, in a series of examinations of appendices recently reported at the Pathological Society, five per cent. revealed the existence of primary carcinoma, a condition usually regarded as rare.

The Present Attitude of Blood Examination for Diagnostic Purposes.—Dr. F. E. Sondern read a paper on this subject. The evolution of hematology during the last decade, he said, has been so pronounced that at the present time an accurate knowledge of the blood condition is considered essential in the diagnostic and prognostic conclusions in all but the most trivial cases. To-day simple anemia, pernicious anemia, splenic anemia and Hodgkin's disease can be differentiated with greater precision than the former less accurate knowledge of the blood changes allowed. In the different forms of acute and chronic leucemia recent work has taught much and justifies dissatisfaction with the present clinical classification of these conditions. Acute lymphatic leucemia, as well as the recently described acute myeloid form of the disease, present a clinical picture simulating an acute infectious process, and it is by means of the routine blood examination that

the differential diagnosis is now most frequently made, improper surgical procedures prevented and the fatal prognosis learned at the earliest possible moment. In acute febrile conditions, when the clinical picture is not yet sufficiently pronounced to justify a diagnosis, a routine examination of the blood is often a guide and always a comfort. This examination shows the degree of anemia, if any, and a search for plasmodia, a Widal test, an enumeration of leucocytes and a differential count of the latter, while they may not establish the diagnosis, at least confine it within narrow limits and often exclude grave conditions feared. In malaria the increase in the relative number of large lymphocytes is an additional stimulus to repeated search if plasmodia are not found at once. In the event of coma the knowledge that meningitis and brain abscess are always accompanied by a leucocytosis and relative polynuclear increase, that uremic, post-epileptic and diabetic coma sometimes show leucocytosis, and that narcotic or alcoholic poisoning, hysteria and tumor have no accompanying leucocytosis is also of diagnostic value when combined with clinical observation. The pronounced leucocytosis and relative polynuclear increase always met with in scarlet fever may be of diagnostic value in the early stages of that disease. While the anticipation of early diagnosis in typhoid fever from the Widal serum reaction has been but partly fulfilled, owing to the delayed response to this test in many cases, the fact that uncomplicated typhoid shows no leucocytosis and a relative lymphocytosis on differential count of leucocytes is an aid not to be overlooked. In pneumonia a consideration of the blood picture is often of the greatest value in both diagnosis and prognosis. In central pneumonia and in other cases where the general symptoms are present but the physical signs indefinite, the existence of a pronounced leucocytosis often justifies the diagnosis. As to the prognosis, the increase in the relative number of polynuclear cells is a direct indication of the severity of the toxic infection and the degree of leucocytosis an absolute indication of the body resistance toward the infection. As regards surgery, the arbitrary rule, that no operation is to be undertaken when the percentage of hemoglobin is below 30, should no longer adorn our text-books. The chlorotic girl with 30 per cent. of hemoglobin, 4,500,000 red cells; a normal leucocyte count, and perhaps a slight relative lymphocytosis on differential count, is certainly in much better condition to withstand an imperative operation than the case of secondary anemia with 50 per cent. hemoglobin, but only 2,000,000 red cells, a marked leucopenia and a high relative lymphocytosis. One of the most important spheres of usefulness of blood examination in surgery is its value as a guide to the existence and severity of an inflammatory process, to the presence or absence of a purulent exudate and to the resistance offered by the economy toward the toxic infection.

Some Recent Advances in Urinology.—The last paper of the evening was by Dr. Louis Heitzmann on this subject. In the course of it he said that one of the reasons why the routine microscopic examinations of the urine so often proved unsatisfactory was because low powers were employed. Under high magnifying powers it could not infrequently be discovered that what were supposed to be tube-casts were not true casts at all. He also spoke of the advantages of cystoscopy. By means of ureteral catheterization the urine from the two kidneys could

be obtained separately, and an examination of the two urines might show that one of the kidneys was much more seriously diseased than the other. He mentioned a case of this kind where in this way it was demonstrated that one of the organs was affected with suppurative nephritis, while in the other there was only a mild interstitial nephritis. He urged strongly against an operation, stating that in his opinion it would prove fatal. The operation was performed, however, and the patient died an hour afterwards.

Advantages and Fallacies of Renal Work.—Dr. E. C. Savidge said that greater freedom of laboratory work has given him (1) renewed faith in certain forms of therapeutics; (2) an almost iconoclastic conviction that we have been making errors after certain laboratory findings; (3) and of greater importance, an insight into conditions which have proved themselves to be observable long before there are laboratory findings. In other words, the laboratory is both confirmatory and non-confirmatory. It clarifies as much by what it does not tell as by what it does tell. These conclusions are to be explained in this way: "(1) In almost all patients over forty who put the tension of concentration on their vaso-motor system, faint traces of albumin can be found in the urine, if it is examined often enough. (2) Certain forms of therapeutic means can vary the specific gravity, the output of urea, can compass the solution of irritating crystals which point to sure future trouble, can, in relaxed venous cases, even remove albumin by enhancing the tonicity of the veins. (3) Having thus, by repeated laboratory use, seen the relation between arterial tension and the output of urea, between venous tonicity and albumin, between specific gravity and the appearance and disappearance of hemoglobin, the following conviction has grown in his mind: Varying these conditions will vary the laboratory findings. Also, the conditions may exist and be perfectly observable some time before the laboratory will give any findings. There is, therefore, it would appear, a renal physiognomy, which can thus be early recognized, even while the laboratory reports normal urine. Frequent laboratory access, therefore, will teach, through the interrelations there learned, how much we can do before the laboratory itself is able to speak.

BOOK REVIEWS.

ANATOMY, DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S. New American Edition, thoroughly revised and edited by JOHN CHALMERS DACOSTA, M.D., Professor of Principles of Surgery and Professor of Clinical Surgery in Jefferson Medical College, etc. Lea Brothers & Company, Philadelphia and New York.

THERE are few physicians in the United States who have not heard of Gray's Anatomy. It has been for many students the cause of anxious nights and working days, yet perennially new crops of aspirants work over its pages with all the energy of a gold miner; and not without results, for the subject of anatomy is not a worn out placer mine, but an inexhaustible vein.

It might seem as though Dr. DaCosta has had set before him a thankless task in revising a work which has for so many years been crystallizing and assuming a stable form, but it is greatly to his credit and shows marked critical acumen as well as anatomical sense

that he has been able to infuse into the Gray of to-day a thoroughgoing scientific spirit in harmony with the movement of the times. Not only has he kept Gray's Anatomy, as in the days of yore, a work of transcendent importance to the student, but he has been able by his surgical sense to introduce into it features that will render the work of service to the graduate and the practitioner of many years' standing. It would be impossible to pick out in the brief space of this review the thousand and one little things which his eyes have seen and his imagination grasped as of pedagogical importance, but we cannot leave the subject without expressing our appreciation of the excellent work that has been done in the discussion of the lymphatic system, a subject which has been heretofore too much neglected in our standard works on anatomy. A liberal taking over of the researches of Charpy and Testut has tended to illuminate the chapter in a striking manner, and it cannot fail to win approbation from the practical surgeon as well as from the anatomist. In one important regard it might be said that the book has practically been made over new, and that is in the matter of the illustrations. The old hackneyed wood-cuts have not all disappeared, but fortunately they represent a very small proportion of the illustrations in this edition. It almost makes one feel as though he would like to enter scholastic fields once more and with the aid of this new edition restudy his anatomy. Surely no higher praise for a work of this general character could be desired.

DIABETES MELLITUS: Its Pathological Chemistry and Treatment. Lectures delivered in the University and Bellevue Hospital Medical College, New York Herter Lectureship Foundation, Part VII of Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Professor Dr. CARL VON NOORDEN, Physician-in-Chief in the City Hospital, Frankfurt-a.-M. Authorized American Translation. Edited by BOARDMAN REED, M.D. E. B. Treat & Company, New York.

THESE lectures on diabetes were delivered to limited audiences in New York, though their subject-matter is such as to interest the profession extensively. There is no doubt that they will be widely read, for they represent the last word on this important subject. Besides, Dr. von Noorden, unlike many who treat of the disease of metabolism, has a much more hopeful and, therefore, helpful way of looking at them than others. His prognosis in diabetes mellitus is not nearly so pessimistic as used to be thought necessary, and his suggestion as to methods of treatment have that detail which make them of special value to the practitioner of medicine. There is not a single question with regard to temporary and permanent glycosuria that is not illuminated in this little volume which contains so much in its 200 pages.

A MANUAL OF ORGANIC MATERIA MEDICA AND PHARMACOGNOSY. By L. E. SAYRE, B.S., Ph.M. With Histology and Microtechnique, by WILLIAM C. STEVENS. Third edition. P. Blakiston's Son & Co., Philadelphia.

In this, the third edition, Professor Sayre has given, particularly for students of pharmacy, a very excellent manual. For the student of medicine or practitioner it is not adapted, as the pharmacology and therapeutics are very inadequately treated. The student of medicine will find it very useful, however, from the standpoint of pharmacognosy in its wider sense. For this it is truly excellent. The chapters on microtechnique and histology have been amplified and are truly excellent.

IMMUNITY IN INFECTIOUS DISEASES. By ELIE METCHNIKOFF, Professor of the Pasteur Institute, Paris. Translated from the French by FRANCIS G. BINNIE. Cambridge University Press. The Macmillan Co., New York.

METCHNIKOFF's researches on the subject of Infection have been classic for thirty years, and it is interesting in this beautifully gotten up and well printed volume to trace the evolution of the ideas of one of the leading pathologists of the scientific world on the subject of the conflict between man and his microbic enemies.

The doctrine of phagocytosis has traveled a long distance from the point of its departure as first brought out by Metchnikoff himself. It has grown broader and fuller, but has still maintained its general outlines as laid down by him years ago, and it is particularly a matter of congratulation to all English-speaking professional men that Metchnikoff's latest summary of his views should be so well presented. It is true that the French edition of this same work appeared in 1901, but enough has been included to bring it more or less up to the present time. Certainly Metchnikoff's contribution to the subject of immunity has all the charm of simplicity which is so conspicuously lacking in the complicated chemical and physico-chemical hypotheses of the German school. A recommendation of such a work would be superfluous, but we can remind those interested in the subject that in this volume they will find "the best that has been thought and said" upon it.

THE FOOD FACTOR IN DISEASE. By FRANCIS HARE, M.D., Late Consulting Physician to the Brisbane General Hospital, etc. In two volumes. Longmans, Green & Co., New York, London and Bombay.

THIS is certainly a strange book. Although couched in modern language it seems as though one were reading an ancient text, a copy of Charaka, perhaps, or some of the Arabian transcriptions of Hippocrates.

Starting with the reflection that modern science has been doing too much hair-splitting and not enough housebuilding, the author proposes to build a synthetic structure, all for himself, and quite like the home-made structures so aptly described by Oliver Wendell Holmes, it certainly looks like one.

A young and enthusiastic student of the laboratory will undoubtedly look over this work and say "rubbish." An older practitioner will acquire many a unique suggestion and much profit by looking through its pages, but we doubt if there is enough "pay dirt in it" to make it worth while. Furthermore, there is so much muddy logic throughout the entire work and such a straining after the erection of a hypothesis of "hyperemia" as the cause of all of the ills of the flesh that it is hard to read the author's conglomerate of observations, mostly clipped here and there and worked into a most confused magma, without a feeling that it seems such a pity with such energy that the work of the author might not have contained some of the fundamental analytical results that he has turned his back upon in his endeavor to be a synthetic philosopher.

CARBONIC ACID IN MEDICINE. By ACHILLES ROSE, M.D. With the portraits of von Helmholtz, Priestley and Lavoisier. Funk & Wagnalls Company, New York and London.

It is refreshing to find a volume like Professor Rose's. As a rule there is so little confidence expressed in therapeutic measures as to be rather discouraging. Dr. Rose, however, has had excellent results in the treatment of many and various affections by means of carbonic acid.

He has found it useful in affections of the lungs, such as asthma and emphysema, and in affections of the blood, such as chlorosis, which Dr. Rose, with characteristic verbal nicety, considers an incorrect term, preferring the designation chloriasis. It has given excellent results also in the treatment of dysentery and membranous colic. In whooping cough it has proved to be one of the long-looked-for remedies. It has been helpful in impotence and in some gynecological affections. Finally, rectal fistula has been promptly, completely and permanently cured by means of carbonic acid applications. Here is evidently a remedial measure hitherto little used that deserves investigation. Dr. Rose gives a short history of the use of carbonic acid in medicine.

ATLAS AND EPITOME OF DISEASES OF THE SKIN. By Professor Dr. FRANZ MRACEK, of Vienna. Edited, with additions, by HENRY W. STELWAGON, M.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Second edition. W. B. Saunders & Company, Philadelphia and London.

DR. MRACEK's Atlas and Epitome of the Diseases of the Skin has met with a very favorable reception in America, having been reprinted no less than five times in its first edition. The present second edition contains a number of additions to the plates as well as the text, and there is no doubt that it will continue the popularity it has enjoyed. For those who consider these atlases as no more than ordinary collections of plates of skin disease it will be a matter of surprise to find how much of practical information with regard to diagnosis and therapeutics has been condensed into the 250 pages of text which precede the illustrations proper. It is this combination in handy form that has made this set of hand atlases so popular, and Dr. Mracek's is undoubtedly one of the best of the series.

HYSTERIA AND NEURASTHENIA. By J. MITCHELL CLARK, M.A., M.D., F.R.C.P. John Lane, London and New York.

DR. CLARK has here collected in convenient form a number of the contributions which he has made to periodical literature from time to time. Fortunately he has confined himself to the discussion of hysteria and neurasthenia, and has given us one of the best small manuals dealing with these affections. Traumatic hysteria and traumatic neurasthenia have been well considered, although much too briefly. When one considers the massive tomes of Binswanger and the careful work of Janet along such lines one cannot but feel that the author has not done himself justice by this desultory and fragmentary treatment of the subject. But it is to be remembered that the work is a student's handbook rather than a specialist's monograph. Viewed in the light of its proportions it is an admirable small manual.

THE DETECTION OF POISONS AND STRONG DRUGS. By Dr. WILHELM AUTENRIETH, Professor in the University of Freiburg. Translated by WILLIAM H. WARREN, Ph.D., Professor of Chemistry, Medical Department of Washington University, St. Louis, Mo. P. Blakiston's Sons & Co., Philadelphia.

THIS is an invaluable small manual for anyone who would pursue qualitative analysis into the fields rarely entered by the ordinary student of chemistry, *i.e.*, into the sphere of medical toxicology. It has been well translated, and as the laboratory directions are such that they can be followed out in a home laboratory, the work will prove of interest to the amateur as well as the professional.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 87.

NEW YORK, SATURDAY, DECEMBER 30, 1905.

No. 27.

ORIGINAL ARTICLES.

THE ESSENTIALS OF SUCCESSFUL ROENTGEN RAY THERAPY.

BY CHARLES LESTER LEONARD, A.M., M.D.,
OF PHILADELPHIA;
FORMERLY OF THE UNIVERSITY HOSPITAL.

THE Roentgen ray varies widely in its physiologic action, when employed therapeutically, according to the quality and strength of the dose. It is a stimulant, an alterative, an analgesic or an escharotic. Used in too mild a dose it can be useless or even harmful, because it simulates the morbid process instead of retarding its growth or destroying the pathologic cells. Too strong a dose, on the other hand, will produce very serious results, as this agent is a powerful devitalizer of tissue and can produce severe necrosis.

But there is no exact method of measuring the dose. It is a complex factor, depending on the character of the apparatus employed in producing this agent. It varies with the quality and volume produced, the nearness or distance of the tube or source of rays from the patient's skin, the location of the disease in the skin, beneath it or in the bones. The measurement of dose is then dependent upon the skill and experience of the operator in producing and recognizing the effective qualities of Roentgen discharge. There is manifestly, therefore, great difficulty in applying this agent effectively in therapeutics, and much must depend upon the skill and experience of the operator. Like many of the more valuable and powerful therapeutic agents, its full value can be secured only when the dose is adapted to the individual case, in such a manner as to produce the full physiological effect, often approximating the toxic or injurious in securing it.

This is rendered the more difficult because of the larger proportion of latent and cumulative energy it possesses. Often the effect of a dose cannot be observed for some days, making it very easy to secure a cumulative action, a second dose being given before the first has fully manifested itself.

A further complication in effective therapy is that the agent must be produced at the time it is employed, and that, by a complicated physical apparatus that demands months of study before it is properly understood. It is not difficult to run an apparatus so that it will produce Roentgen rays of very great therapeutic potency, but it is difficult to produce at will, the desired quality and quantity of Roentgen rays adapted to the treatment of the individual case in hand, and it is yet more difficult to recognize that these rays

are of suitable quality and are producing the desired result. The possession of apparatus that will produce a powerful Roentgen discharge does not guarantee that the operator can produce beneficial results, and if too powerful, it may be a source of danger rather than of good. The knowledge that is essential cannot be acquired from books, but demands diligent, painstaking study of the physical phenomena that can be observed in the Crookes's tube in action, and in its effects upon the photographic plate.

It is absolutely essential to the efficient employment of all therapeutic agents that the practitioner shall possess special knowledge of the structure of the body, of its normal physiologic functions and be able to recognize pathologic states before he is permitted to apply therapeutic agents to restore normal conditions.

The Roentgen rays possess very subtle physiologic actions, that demand all the ordinary education of a physician and the special knowledge acquired in their study to recognize and estimate them. It is impossible for persons, unfitted by education to recognize the effects of remedial agents, to apply this agent with success. It must be recognized as a powerful therapeutic agent as much as strychnine, digitalis or arsenic, and as dangerous in unskilled hands, before any uniformity in therapeutic results can be expected.

Until it is so recognized, and until only properly qualified medical men are allowed to employ it for any purpose on the human body, there will be great variance in results, and possibly much harm will be done by it. The medical profession are at fault in this matter. They would not permit a chemist to determine for them the quality or dose of the remedy they ask him to compound, but they do employ unskilled, uneducated persons to apply a powerful agent, the qualities, the dose and the effect of which they are unable to recognize, and then complain that they cannot secure results.

Successful results are not achievable with this or any other remedy in all cases that are even apparently alike. The best therapist often sees his remedies fail. Many hopeless cases are brought for treatment and demand the greatest care and skill, but to no avail. The successful therapist must, however, be able to recognize the effect of the dose he employs in the individual case. With this agent it is essential that he manufacture and recognize the quality and quantity in the dose, as well as observe that it produces the desired effect on his patient.

As has been said, the Roentgen rays can be applied with stimulant, alterative, analgesic, destructive and healing effects. Their field of application is ever widening, because they act in

harmony with metabolic processes, decreasing the morbidity of the pathologic cell, stimulating natural processes of absorption and helping to restore the normal. It is only when applied in overdose that it becomes destructive and harmful. Because it acts in unison with natural processes and decreases the morbidity of pathologic cells, thus retarding pathologic processes, it is capable of an application as wide as all those agents that increase the vitality and resisting powers of the body. It is not in itself a curative agent except only in so far as it increases the vitality and reparative powers of the body.

It is, however, a complex agent, produced by complicated apparatus, having varying qualities that must be adapted to the individual morbid process. Not only must the quality of the ray be adapted, but also its manner of application, so that its effective energy will be absorbed in the diseased area wherever situated in the body.

It is so powerful an agent that it can do severe injury rather than good; so varied in its effects that timidity in its application will make it stimulate rather than retard the disease; so different in its qualities that it can be applied for long periods without producing benefit, if the quality appropriate to the lesion is not employed.

Sound clinical judgment must determine the quality and dose to be used according to physiologic action required. Treatment must be carried forward with energy and judgment, especially in the treatment of malignant disease.

This is essential to success, and to do it the operator must often approach close to the point where healthy tissue is devitalized, for in no other way can the energy of growth of the malignant cells be injured and their absorption secured. The effect produced upon normal tissue, *i.e.*, the skin, is the guide. That effect must be so severe as to threaten its vitality, if underlying malignant disease is to be influenced. Very frequently in treating malignant disease an erythema or even a so-called burn are produced.

Although it is necessary to push treatment in some cases to a point where a slight burn is produced, it should not be understood that a severe burn is necessary, and that when it is produced with proper therapeutic dosage, it is of slight moment compared with the result obtained.

It is evident that Roentgen treatment cannot be successful except in the hands of those possessing the qualifications mentioned, and, moreover, that it is dangerous in the hands of any one less well equipped.

The great variation in results noted will be found, if traced to their true cause, to be due to the presence or absence of these essential qualities in the therapist. Uniform success cannot be achieved by the most skillful therapist in any branch of medicine or surgery, and in this department, as in others, there must be wide variations according to the skill and experience of the individual.

It should, however, be realized that this is a

very powerful agent, that demands special equipment in education and experience for its safe and successful employment.

A CLINICAL AND BACTERIOLOGICAL STUDY OF THE COMMUNICABILITY OF CEREBROSPINAL MENINGITIS AND THE PROBABLE SOURCE OF CONTAGION.

Part I of an Investigation of Cerebrospinal Meningitis Carried Out Under the Auspices of the Special Commission¹ of the Department of Health of New York City.

BY CHARLES BOLDUAN, M.D.,

AND

MARY E. GOODWIN, M.D.,

OF NEW YORK;

ASSISTANT BACTERIOLOGISTS, RESEARCH LABORATORY.

(From the Research Laboratory of the Department of Health, Dr. William H. Park, Director.)

(Continued from Page 1228.)

12. Joe N., at 142 Tenth Avenue, aged three years, died of cerebrospinal meningitis about April 7, after an illness of a few days. One month later May H., aged three years, living on the next floor above, developed the disease. The N.'s have one other child; H.'s have four other children. The children of both families play together, but otherwise there is no intimate relation between the two families. Meningococci were isolated from the nose of Joe on the second day of the disease.

13. Laura G., at 458 Eleventh Avenue, 3½ years old, and James G., five years old, developed cerebrospinal meningitis the same day, May 19. Laura died the following day, James was sent to Bellevue Hospital. On May 24, Richard six years old, developed the disease. There are no other children. They all slept together. Four rooms, rather dirty, very dark.

14. Rosie S., aged nine years, at 172 Rivington Street, developed cerebrospinal meningitis April 18, and died April 23. A week after her death, Joe, her brother, aged five years, developed the disease. He is now convalescent at Gouverneur Hospital. There are three other children in the family, which occupies three rooms. Meningococci were isolated from the nose of Joe on the fifth day of the disease.

15. Louis M., at 233 East Ninety-seventh Street, aged nine weeks, died of cerebrospinal meningitis after an illness of one week. He was kept at home during the illness. His sister Molly also developed the disease. After remaining at home for eight days she was sent to the Presbyterian Hospital, where she died after a total illness of about one month. Prior to her removal to the hospital, and while she was already sick with cerebrospinal meningitis, Molly was allowed to sleep with the other children.

¹ Commission for the Investigation of Cerebrospinal Meningitis: William M. Polk, M.D.; Walter B. James, M.D.; Simon Flexner, M.D.; Edward K. Dunham, M.D.; William F. Northrup, M.D.; William K. Draper, M.D.; Joshua Van Cott, M.D.; W. J. Elser, M.D., in conjunction with Thomas Darlington, M.D., President, and Hermann M. Biggs, M.D., General Medical Officer.

Nine days after this removal to the hospital, another sister, Cecilia, aged fourteen years, developed the disease. She was also sent to the hospital and is now convalescent. Besides the above there are three other children in the family. The rooms are fairly clean; there is one cat; also rats and mice.

16. Rachel K., at 107 Forsyth Street, top floor, aged seven years, developed cerebrospinal meningitis about March 3, and died in three weeks at Beth Israel Hospital. She was at home four days before her removal there. The family occupies five rooms, fairly clean. There are four other children. About one month later Elizabeth E., one year old, living on the same floor of this house, developed the disease. She died May 6; there are four other children in this family. There is considerable friendly intercourse, especially between the children of the two families. No cats in either home.

17. Willie S., twelve years old, of 117 Norfolk Street, developed cerebrospinal meningitis February 22, and was sent to the hospital three days later. He is now well, but not yet out of the hospital. There are seven other children, and they live with their parents in three rooms. On May 15 Lena H., aged eight years, developed the disease, and died May 16. There are five other children in the H. family. There is considerable intercourse between the children of these families, and some of them are in the same class in school.

18. Esther W., aged ten years, of 96 St. Mark's Place, felt sick with headache May 15, and became violently ill of cerebrospinal meningitis on the morning of May 16. On the night of May 16 her playmate, Bella, aged 6½ years, developed the disease and was taken to the hospital the next day. There are several other children in each family. Besides contact through the children, it was found that Mrs. F. visited the W. child the morning she was sick in bed, May 16.

19. Esther S., then living at 19 Allen Street, had cerebrospinal meningitis from June 1, 1904, and died in about two weeks. Her sister, Rebecca, developed the disease about June 11, 1904, and was taken to Gouverneur Hospital June 12. Discharged cured September 14, 1904. Since then the family has moved several times. They now reside at 4 First Avenue. On May 19, 1905, Theresa S., aged four years, developed the disease and is now in Gouverneur Hospital. There are now four other children at home. Three rooms, clean and light.

20. Sarah G., at 118 Delancey Street, seven years old, developed the disease on January 13, and died January 22. Two weeks after her death her sister Rachel, eleven years old, developed the disease. She is still sick. The family have one other child besides these. They occupy two rooms, quite dirty. No dogs or cats.

21a. Louis Z., seven years old, of 85 Willet Street, third floor front, became ill with cerebro-

spinal meningitis April 30, and was taken to Gouverneur Hospital the same day. Both he and his brother and sisters (ranging in age from one to eight years) often played with the children of a family, C., living on the floor below. On May 20 the disease broke out in the C. family (see next case). Meningococci were isolated from Louis Z.'s nose on the third day of the disease.

21b. Charles C., of 85 Willet Street, aged nine years, developed cerebrospinal meningitis on May 20, and was taken to Gouverneur Hospital May 23. On May 22 his little brother, Tobias, four years old, developed the disease. Both are still sick. Besides these two children the C. family has one other small child and several older children who go to work. They occupy three rooms.

22. Jennie D'A., aged 2½ years, of 316 East Eleventh Street, second flight, was taken sick with cerebrospinal meningitis March 2, and died March 3. On March 7, Rosie, aged 3½ years, a sister of Jennie, developed the disease and died within twelve hours. The children did not sleep together. No previous case known. Family occupies three rooms and consisted of the parents and six children. There are no bedbugs; rooms clean.

23. Nicholas D., 3½ years old, of 2134 First Avenue, taken sick with cerebrospinal meningitis February 22. On March 1 his brother C., aged four months, who had slept in the same bed with him, developed the disease and died April 21. There are six other children, mostly older. Family has three rooms, moderately clean. No cats.

24. Camella G., sixteen years old, 2076 First Avenue, third flight, was taken sick with cerebrospinal meningitis March 7, and died May 3. There are three other children in the family. While Camella was sick, among others who came to visit was Mrs. S., who lived on the floor above. On March 28, Maria S., daughter of the latter, developed the disease; she has now completely recovered. In addition to contact through Mrs. S., there was much contact between the other children of both families, who constantly played together.

25. Eddie S., of 1699 Third Avenue (eleven years old), had cerebrospinal meningitis in December and died just before Christmas. Among his chums was a boy named C., living across the street (1650 Third Avenue). In addition to this, the other C. and S. children were very good friends, and visited each other's homes frequently. On February 24, Theresa C. (sister of the C. boy), aged 5½ years, developed the disease and died February 25. On February 25 her sister Kate, 2½ years old, developed cerebrospinal meningitis and is now in the hospital. On February 27 Maggie, aged seven years, developed the disease. She recovered, but is deaf. There are four children still left. Interval between S. and C. cases, two months. Intervals

between the three cases occurring in the C. family were one and two days.

26. Pauline P., of 3 Hester Street, aged eleven years, had cerebrospinal meningitis March 18, and died the same day. Besides the parents there are four other children, also one woman with a baby. All these live in three rooms. On the same floor in the front of the house lives a family, F., who are very friendly with the P. family. The children are always in and out of the apartments. On March 23, Mary F. developed the disease and was taken to Gouverneur Hospital next day. She has now recovered. There are three children and the parents in the F. household.

27. Sadie S., at 78 East 113th Street, eleven years old, became sick with cerebrospinal meningitis March 10 (Harlem Hospital, then Bellevue; recovery). Her brother Max also developed the disease twelve hours later. Recovered. Mrs. S. says the girl complained of fever and chilly sensations for two days prior to onset. She insisted, however, on going to school. During this prodromal stage there were no headaches, no vomiting.

28. Liboria C., ten years, Joan C., eight years, and Ernesto C., seven years, of 431 East 115th Street, all developed cerebrospinal meningitis on the same day about two months ago. Ernesto died. No trace can be found of source of infection.

29. Francesca M., of 195 Elizabeth Street, was taken sick with cerebrospinal meningitis about March 10. She ran a typical course for twenty-two days. About April 5 she had a relapse and was taken to Bellevue April 27. On April 17 Joe M., seven years old, a brother of the preceding, suddenly developed the disease. He had not slept with the patient. The grandmother of the children suddenly became sick with cerebrospinal meningitis on April 22, and died in Bellevue April 29. She had not slept in the same room with either patient. The family occupied three rooms on the top floor of a dirty tenement. No cats or dogs. Bugs probably present. Meningococci were isolated from the nose of Joe on the twelfth day of the disease and from the nose of the grandmother on the fourth day of the disease.

30. Katy K., five years old, 224 West Sixty-seventh Street, died of cerebrospinal meningitis about five weeks ago after an illness of one week. One week after the onset of the disease, Jennie L., also five years old, and living on the floor below, developed the disease. No direct connection can be made out and no good history obtained. Neither family at home. It is very likely, however, that the children would play together, as they are of the same age.

31. Kitty T., aged three years, of 308 West 135th Street, died of cerebrospinal meningitis about one month ago after an illness of three weeks. A week after she was taken sick the baby, Tony, one year old, developed the disease and

died in ten days. There are no cats or dogs about; there may be bugs.

32. Francis C., aged two years, of 20 East 132d Street, became sick with cerebrospinal meningitis on February 16, and died two days later. His father, a carpenter by trade, did not feel quite well on February 17 and became very sick on February 18, in the morning. He died February 22. There are two other children and the mother still living. They have returned to Carbondale, Pa. Family occupied four rooms on top floor, all light; no cats or dogs.

33. Gertrude F., three years old, 124 East 118th Street, became sick with cerebrospinal meningitis March 27, and died within twenty-four hours. Four days after her death her sister Flora, one year old, developed the disease, and died May 12. There are two other children. Flora was taken to the hospital at once. Family occupied four rooms, fairly good condition. Had no pets.

34. Lester G., of 235 East 102d Street, top floor, aged 2½ years, was taken sick with cerebrospinal meningitis on March 25, and died May 6. There were three other children in the family, but they did not sleep with patient. The eight-year-old child of the janitress, Mrs. L., living on the ground floor, developed the disease, and died in a few days. There is but little intercourse between the families, and the children do not play together (Mrs. L. has three children). Mrs. L. visited the G. family once at the beginning of the illness. It was about a month, she says, before the illness of her own child. The G. family did keep a cat; there are a few bedbugs; no roaches. No cats or vermin (?) in the other house.

35. Henry W., aged thirteen years, 206 Broome Street, was taken ill with cerebrospinal meningitis suddenly and taken to the hospital next day. Eight days later his brother Aaron, aged six years, developed the disease. Both patients recovered. There are five other children in the house and the family occupies three rooms. There are no bugs (?), but two cats. Interval, eight days.

36. Kathleen S., 115 East 102d Street, aged sixteen months, was suddenly taken ill with cerebrospinal meningitis on March 12 and died on March 14. Five weeks later her brother Daniel, 3¼ years, developed the disease, dying two days later. There are no other children in the family. Both patients slept with their parents in one large bed, and they slept there even while sick. Interval between cases, five weeks. There are no cats or dogs and no vermin. The rooms are moderately clean.

37. Baby H., eleven months old, at 208 East Ninety-sixth Street, top floor, developed cerebrospinal meningitis about April 2 (is still alive). Besides the parents there are two other children. Across the hall on the same floor lived the family O., with three children, who visited in the H. apartment constantly. On April 6 or 7 Mrs. O.

says her daughter, Wilhelmina, aged eight years, was in the H. apartments and hung about Mrs. H., who was carrying her sick child about. On April 8 Wilhelmina became sick with typical symptoms of cerebrospinal meningitis, and died April 11. Both apartments are quite clean, large, well-lighted and well-ventilated. No bugs; no pets. Interval between onset of two cases, six days.

38. At 308 East 106th Street, third floor rear, there lived the families C. (man, wife and two children), and Ch. (man, wife and baby.) Altogether they have three rooms (history obtained from neighbor as people were not at home). One of the babies became ill with cerebrospinal meningitis and died. The second baby became ill two days after the first. Apartments in the house very dirty. No cats. Interval, two days.

39. John R., fifty-three years old, of 407 East Sixtieth Street, died of cerebrospinal meningitis on April 3 after an illness of four days. There still remain of the family the wife and one son. Next door to R. lives the family P., relatives of the former. During the illness and at the funeral Mrs. P. was in the R. home frequently. Some of the children were there also. Ten days after the funeral Nellie P., thirteen years old, developed cerebrospinal meningitis. She is now recovering. The P. family occupy four rooms. Beside the mother there are six children.

40. Rosie B., of 231 Eldridge Street, was a patient at Gouverneur Hospital suffering from cerebrospinal meningitis. She ran an atypical course. Had slight tenderness at the back of the neck. Some difficulty in walking during convalescence. There was no eruption. Temperature dropped by crisis. No lumbar puncture was made. Max B., brother of the preceding, was taken sick about three weeks later and also ran a very atypical course. No rigidity, no Kernig sign. Had a peculiar macular bright red eruption which was regarded as possibly scarlet. A diagnostician from the Department of Health, however, pronounced it not scarlet. The spots were very close together and all over body. They resembled typhoid spots. Temperature dropped about the tenth and eleventh day. Spinal puncture was made three days after that (for diagnosis). It showed very many meningococci (Dr. Goodwin).

41. Theresa S., at 329 West Thirty-ninth Street, was taken ill with cerebrospinal meningitis on March 24, and died within twenty-four hours. Her sister Rosie, who slept in another bed, developed the disease twelve hours after Theresa. She died in three days. There are five other children in the family.

42. Rosa P., aged six years, living at 222 West Thirtieth Street, was taken ill with cerebrospinal meningitis some time in January, dying in twenty-four hours. Six days later her mother developed the disease and died in forty-eight hours. The mother had about ten children, some of whom were married. Five unmarried

children, however, still lived with her. Four rooms, quite clean, top floor back. Plenty of light. There is one cat. Bugs (?).

43. Evelyn D., five years old, of 147 West Sixtieth Street, developed cerebrospinal meningitis after an outing in the Park. Her mother says the girl fell and struck her head. But there was no loss of consciousness and child appeared to be perfectly normal after the accident until about twelve hours after. During the night she was suddenly attacked with vomiting, headache and fever. Her physician was positive of the diagnosis cerebrospinal meningitis. She died on April 10. There were no other children in the family. Just one week later a chum of Evelyn, living one floor lower in the same house, Annie McC., eight years old, developed cerebrospinal meningitis and died in two days. Mrs. McC. says that during Evelyn's illness and at the funeral her children had all been up to see Evelyn (there were five McC. children, all older than Annie.)

44a. Julia C., of 406 West Forty-second Street, six years old, taken sick with cerebrospinal meningitis on May 3. Three days later her sister, E., three years old, developed the disease. Prior to Julia's illness she and Elizabeth slept in the same room, but not in one bed, Julia sharing a bed with her little brother John. There is one cat in the house. No bugs; plenty of room. Clean. (Elizabeth had been subject to repeated attacks of convulsions for a couple of years. Mother thinks perhaps cerebrospinal meningitis diagnosis not true.) Both children were taken to Bellevue after Elizabeth was taken ill, and both died there.

44b. Julia C. attended a kindergarten in Forty-second Street and had told her mother of a girl being sick there with cerebrospinal meningitis. This case was looked up and proved to be Juliet B., aged four years, of 448 West Forty-second Street. She was taken ill about February 6 and stayed at home until April 25. Then she returned to school for three or four days. Diagnosis of her illness not conclusive, though she had severe headache, was very drowsy and kept to her bed. She lost considerable flesh and was not able to walk well when she recovered. Her physician pronounced it cerebrospinal meningitis.

45a. Caroline J., of 417 West Fortieth Street, second floor front, six years old, was sick early in February with cerebrospinal meningitis and died at the end of that month. There are two other children in the home (aged eight and nine years). The home consists of three rooms. There are no dogs, no cats. Children play all over, the mother going out to work by the day. On the ground floor of this house is the shoemaker shop of R. Here a boy, Paul R., aged two years, developed cerebrospinal meningitis on April 10, was taken to the hospital on April 23, and died there April 28. There are two other children older in the house. Besides the shop the family

have two living rooms only. There are no cats or dogs. Apartment moderately clean. It is not possible to connect this case directly with the preceding, though of course the children may have come in contact with each other.

45b. The J. girl attended a kindergarten connected with a small public school (eight small rooms). Directly next door to this school, one of the pupils, S. by name, died of cerebrospinal meningitis December 21. He was in the class ahead of the kindergarten, and of course may have played with the J. girl. No positive connection between the cases can be established.

46. Blanche M. was ill with cerebrospinal meningitis in 266 West Thirty-ninth Street, and died. One of her chums was Kitty A., a classmate from school. Mrs. A. was afraid Kitty might contract the disease, so took her to the country after Blanche's death. Mrs. M. has recently heard of Kitty's death from the same disease.

47. No. 443 East Thirteenth Street, a four-story tenement with a rear house. The following cases have occurred there, but it is not possible to find the connection between them: About six weeks ago a boy living on the second floor front, east, developed cerebrospinal meningitis, dying in twenty-four hours. There is one other child, seven years old, but not affected (cannot find out name of the family). About two weeks later, James C., living on the top floor front, developed the disease. He is still alive (May 12). There are no other children in this family. Parents say James did not play with children of the first family. Two weeks after the onset of C.'s illness the disease appeared on the ground floor in the family of V., who keeps a butcher shop. His daughter, Annie, became ill and died in four days. There are two other children, but they were not affected. No cats; no dogs. Two days after death of Annie V., a baby, R., living in the rear house, second floor, was taken ill with cerebrospinal meningitis. She died (?). No other children in the R. family. No intercourse can be made out between the various cases. A child died of cerebrospinal meningitis in the family of L., 445 Thirteenth Street, who keeps a saloon on the ground floor. His child was nine years old and died after an illness of five days. Typical symptoms. This was about six months ago.

48. Mrs. S., of 501 East Seventy-sixth Street (tenement) had a baby sick with cerebrospinal meningitis from February 10, 1905. The child died March 7. Among those who came to express their condolences was Mrs. Schn., living on the same floor, who stayed but a minute or two. On March 18 the latter's thirteen-year-old son developed the disease and died two days later. No other contact can be discovered. No other children. Each family occupies three rooms. Interval between cases, eleven days.

49. Mrs. W., of 871 First Avenue (tenement) had a child die of cerebrospinal meningitis on

February 24, after an illness of three days. On March 17 the nine-months-old baby of Mrs. J., the janitress, developed the disease and died in ten days. Mrs. J. lives two floors below W., and although she renders no real janitor service (no dumb-waiter), visits the tenants to collect the rent. Interval between cases, twenty-two days. It may be remarked in passing, that Mrs. W. lost a child of cerebrospinal meningitis in March last year, eleven months ago. At that time she lived in this same house.

50. In 75 Baxter Street, an Italian family, B., living on the fifth floor of a large tenement, had a baby aged eight months sick with cerebrospinal meningitis. Eleven days after the onset the baby's brother, eight years old, developed the disease and died in two days. On the seventh floor of this tenement lives another Italian family, C. Their baby, one year old, was taken sick with cerebrospinal meningitis about three weeks after the B. boy had died and while the B. baby was sick in the house. The C. baby died in a week. There are other children in both families, and they all play together.

51. In No. 13 Little West Twelfth Street, Mrs. F. had her four children all stricken with cerebrospinal meningitis within a few days. All of them were at once sent to St. Mary's Hospital. Two of them died, one March 9, the other March 11. On the death of her two children Mrs. F. visited a family D. living on the floor below, and cried a great deal as she related her story to Mrs. D. Five weeks after the last child had been taken to the hospital, and about the same time since Mrs. F.'s visit just mentioned, the D. baby developed cerebrospinal meningitis. The following day the five-year-old boy was taken sick, and three days later two more developed the disease. Three of these have died. There is considerable intercourse between the families. At the time these facts were elicited, four days after the last of Mrs. D.'s children had been sent to the hospital, nasal swabs were taken from both Mr. and Mrs. D. Both were found loaded with meningococci.

52. At 517 West Forty-sixth Street, a young man, A., developed cerebrospinal meningitis suddenly after playing ball in Central Park. He was treated at home for four days, and then sent to Roosevelt Hospital, where he died in two days. During his stay at home he had been nursed by his mother, Mrs. R. She developed the disease five days after the boy's removal to the hospital and died in two days. Interval between cases, five days.

53. At 428 West Thirty-seventh Street, Kate D. developed cerebrospinal meningitis on March 30 and was removed to the hospital the next day. Her baby brother, thirteen months old, was taken sick eleven days after this and died in one day. Interval between cases, eleven days.

54. At 158 West Twenty-eighth Street, a boy 2½ years old, the child of a fruit pedlar, M., developed cerebrospinal meningitis. He was sick

only one day and died March 29. Five days later two other children were taken sick. One of these has completely recovered; the other is still living (iv-18) in the hospital. Interval between first and second case, five days. A nasal swab taken from Mrs. M. fourteen days after the children were sent to the hospital showed very many meningococci. Swabs made from the other children and from the convalescent case were negative.

55. In 86 Horatio Street, Mary, aged six years, was taken ill with cerebrospinal meningitis on Christmas Eve. She was sick for about two months and recovered, although deafness resulted. A week after the onset, the girl's aunt, Elizabeth F., who lived in the same apartment and had nursed the girl, developed the disease and died after an illness of one week. Two weeks after the funeral of the aunt, and while the first case was still in the house, a little baby sister of this first patient became ill. She died after an illness of five weeks, during which time she had many convulsions and high fever. (The attending physicians said she died of convulsions due to teething and that she did not have cerebrospinal meningitis.)

56. At 131 Thompson Street, a boy, A., eleven years old, developed cerebrospinal meningitis and died in twenty-four hours. Two months after this, two other children living in this apartment, one a brother, A., aged six years, the other a cousin, G. (aged four years), of the first patient, became ill. Both died after an illness of three or four days. Interval between the occurrence of the cases, two months.

57. At 515 East Twelfth Street, John E., two years old, was taken sick the beginning of March. Three weeks later, while the first patient was still alive in the house, his brother (eight months) Andrew developed the disease. Both died about April 7.

58. At 307 East Forty-fifth Street an Italian family, S., have a girl aged $3\frac{1}{2}$ years, sick for the past two months with cerebrospinal meningitis. A month after the onset the two-year-old boy in the family, P., living on the floor above, developed the disease. Both patients still sick. There are other children in both families, but these are not ill.

The 58 instances represent 144 cases, as follows:

39 instances with 2 cases to a house.....	78 cases
15 instances with 3 cases to a house.....	45 cases
2 instances with 4 cases to a house.....	8 cases
1 instance with 5 cases to a house.....	5 cases
1 instance with 8 cases to a house.....	8 cases

In 34 of these 58 instances there was an interval of varying length between the death or removal of the first case and the onset of the disease in the subsequent case or cases. The length of the interval may be tabulated as follows:

In 14 instances it was from 1 to 7 days.*
In 5 instances it was from 1 to 2 weeks.
In 4 instances it was from 2 to 3 weeks.
In 3 instances it was from 3 to 4 weeks.
In 2 instances it was from 4 to 5 weeks.
In 3 instances it was from 5 to 6 weeks.
In 2 instances it was from 7 to 8 weeks.
In 1 instance it was 3 months.

The incubation period of cerebrospinal meningitis is usually considered to be about four days. If, therefore, we subtract from the above 34 cases the nine which developed within four days, we have 25 cases in which the question arises as to where the infecting organism was harbored in the meantime.

This question is answered, in part at least, by the results obtained by the bacteriological examination of nasal swabs from the parents of some of the children sick with cerebrospinal meningitis. In three cases of the present series a large number of meningococci were obtained in cultures from these swabs (See cases No. 51 and 54). That the organisms are really meningococci will be seen by a study of Dr. Goodwin's paper on the bacteriology of the meningococcus. It may be added that in one of these cases the organism was obtained fourteen days after the last contact with patient, and in the other four days after such contact. Meningococci were also isolated from the nose of five cases suffering from cerebrospinal meningitis. (Cases 12, 14, 21a and 29.)

In 18 of the 58 instances studied the second case developed while the first was still in the house. The interval between the onsets in these instances was as follows:

In 3 cases it was	1 day.
In 4 cases it was	2 days.
In 1 case it was	3 days.
In 1 case it was	5 days.
In 1 case it was	6 days.
In 4 cases it was	7 days.
In 1 case it was	9 days.
In 1 case it was	11 days.
In 1 case it was	21 days.
In 1 case it was	30 days.

In three of the instances encountered the disease occurred in the families of janitors and seems to have been communicated to or by them in the ordinary intercourse with the tenants. These are cases No. 9, 34, 39.

In two instances the disease appears to have been contracted in school. Cases no. 44b, 45b.

In four instances mothers or other relatives taking care of children suffering from cerebrospinal meningitis developed the disease. Cases 29, 42, 52, 55.

Period of Incubation.—Case 7 of this series is of considerable interest, for it throws some light on the period of incubation. In this case two children developed the disease within two days of each other, and the only contact between them had occurred a day pre-

* In nine of these 14 it was four days or less.

vious to the other in one of them. If both children became infected from a common source the incubation period is one day for one child and two days for the other. If, however, the second child was infected from the first, the incubation period is each by three days. The latter assumption is certainly more likely for the period of incubation agrees more closely with other cases in the literature. Thus Rickard⁹ gives the case of a woman who visited a home in which two children were sick with cerebrospinal meningitis. She stayed in the house one day and then visited her uncle. Four days later she became ill with cerebrospinal meningitis. During the last few days of her illness she was visited by a young man who in turn developed the disease in a mild form four days afterwards. At the end of five days he was able to return to business. Five days after his return one of his fellow clerks developed the disease.

Dwelling Infections.—There are practically no references in the literature to "dwelling or house infections," such as are seen in tuberculosis. As a rule, when more than one case is mentioned as occurring in a house or building the infection appears to have been a more direct one. In the present investigation we have not met with a single instance of true "house infection." In view of the feeble vitality of the meningococcus, this is about what was to be expected.

Bacteriological Study: Occurrence of Meningococci in Nasal Mucus.—In order to determine the occurrence of meningococci in nasal mucus, cultures were made from 152 persons, including about equal numbers of those suffering from cerebrospinal meningitis, those in close contact with such cases, and those known not to have been near cases of meningitis. The bacteriological examinations were carried out by Dr. Goodwin, and may be summarized as follows:

Fifty-two cases of meningitis were examined. Meningococci were isolated from 12 of the 22 examined during the first week and from 5 of the 15 examined during the second week. In 6 cases examined during the third week, 3 during the fourth and 6 between the sixth and ninth weeks

no meningococci were isolated. In the first series of 52 cases, 10 were isolated during the first week, 5 during the second, 6 during the third, 3 during the fourth, 6 between the sixth and ninth weeks, and 12 were not isolated.

In the second series of 55 cases, 10 were isolated during the first week, 5 during the second, 6 during the third, 3 during the fourth, 6 between the sixth and ninth weeks, and 12 were not isolated.

them in large numbers on the second.

The nasal secretion of 45 healthy persons living in close contact with meningitis patients was examined. In five of these meningococci were isolated during the first two weeks of the patients' illness as follows:

	Name.	Day of Patient's Illness.	Time since last contact.	Condition.	Proportion Present. Per cent.
51	Mr. Daeder . .		4 days	Normal	95
52	Mrs. Daeder . .		4 days	Normal	95
	Mrs. Kennedy . .	14th day	Still in contact	Normal	95
	A. Kennedy . .	14th day	Still in contact	Normal	50
54	Mrs. Marzo . .		4 days	Normal	30

The numbers refer to cases in the preceding series.

From the nasal mucus of 55 first-year medical students who had never been in known contact with meningitis, a few organisms were found which were culturally like meningococci but which differed from the meningococci in the agglutination characteristics.

The full report of this bacteriological work will shortly be published by Dr. Goodwin in a separate paper.* It will be seen that the greatest care was taken to identify these organisms as meningococci and that they were so identified.

Summary.—To summarize our knowledge concerning the epidemiology of cerebrospinal meningitis and the mode of infection we may say:

1. The disease has occurred in several large epidemics during the past century; sporadic cases are met with in the periods between these epidemics and constitute the link between the epidemics.

2. We do not know the circumstances giving rise to these epidemic outbreaks.

3. The epidemic form of cerebrospinal meningitis is almost invariably associated with the meningococcus of Weichselbaum; the sporadic cases are frequently associated with this organism.

4. During the first week of the disease the meningococcus is present in the nasal mucus in fully half of the cases; later in the disease it is found in a smaller fraction of cases. It also occurs in the nasal secretion of some persons who are in close contact with cases of cerebrospinal meningitis. In our series this was about 10 per cent. of the persons examined.

5. The meningococcus has a low vitality, being

* See Journal of Infectious Diseases, Am. Pub. Health Assn. Supplement, 1906.

	Name.	Day of Disease.	Termination.	Proportion Present in Plates. Per cent.
	W. Walker . .	1st day	Died	55
12	J. Norman . .	2d day	Died 3d day	90
218	L. Zuck . . .	3d day	?	30
	E. Rubin . . .	3d day	Died 4th day	50
	R. Turbish . .	3d day	Died	40
	J. Goldfarb . .	4th day	?	95
20	Mrs. Millazzo .	4th day	Died 6th day	! Very few
	S. Fieland . . .	5th day	Died	50
	S. Kistan . . .	5th day	?	90
	J. Stolz . . .	5th day	?	30
	D. Michaelis . .	7th day	Recovered	2
	C. Preglia . . .	7th day	?	5
	Merritt . . .	10th day	Died	10
	M. Goldberg . .	10th day	Died	2
29	J. Millazzo . .	12th day	Died	Very few
	M. Hansen . .	14th day	?	95
	E. Schwarz . .	14th day	Died	5
	S. Krouse . . .	6th day	Died 69th day	2

The numbers refer to cases in the preceding series.

rapidly killed by drying and on exposure to sunlight. This makes infection by dust extremely improbable.

6. The disease seems distinctly communicable in the sense that the *organism is transmitted* from the nasal secretion of one person to another. The transmission of the organism, however, is not synonymous with *transmission of the disease*.

7. The susceptibility of the individual is an important factor in the development of the disease.

8. It seems unlikely that infection is frequently due to trauma or the result of overexertion.

9. Cerebrospinal meningitis in other animals seems to have no connection with the disease in man. The subject, however, has not been sufficiently worked out to admit of positive statements.

10. There is no evidence to show that the disease is carried by vermin or insects.

11. The disease in some epidemics affects mostly infants, in others, older children, and sometimes chiefly adults. The reason for this is not at all clear.

12. The period of incubation seems to be short, from one to four days.

13. There is no evidence of the occurrence of "dwelling infections."

We take this opportunity to thank Dr. William H. Park for his constant interest in our work and for many helpful suggestions.

BIBLIOGRAPHY.

1. Webber: Boston Medical and Surg. Journal, 1866, Nos. 74 and 75.
2. Hirsch: Handbook of Geographical and Historical Pathology, London, 1886.
3. Jaeger: Die Cerebrospinal Meningitis als Heeresseuche, Berlin, 1901.
4. Aitken: Science and Practice of Medicine, Vol. II.
5. Weichselbaum: Fortschritte der Medizin, 1887.
6. Marchal: Centralblatt für Bakteriologie, XXXII.
7. Schottmüller: Münch. med. Wochenschr., Nos. 35, 36, 1905.
8. Panienski: Deutsche militärärztliche Zeitschrift, 1895.
9. Quadu: Baumgarten's Jahresbericht, 1895.
10. Bonome: Ziegler's Beiträge, Vol. VIII, 1890.
11. Councilman, Mallory and Wright: Report Massachusetts State Bd. Health, 1898.
12. Schiff: Centralblatt für Bakteriologie, XXV, p. 437.
13. Kiefer: Berliner klin. Wochenschrift, 1896.
14. Lord: Centralblatt für Bakteriologie, XXXIV, 1903.
15. Albrecht and Ghon: Wiener klin. Wochenschr., 1901.
16. Weichselbaum and Ghon: Ibid., 1905.
17. Griffon and Gandy: Bull. et mém. soc. méd. d'hôp. de Paris, 1901.
18. Solomon: Berliner klin. Wochenschr., 1902.
19. Moller: Mittheilungen aus dem Grenzgebiet d. Med. und Chir., Vol. XIII.
20. Bettencourt and Franca: Zeitschr. f. Hygiene, Vol. 46, 1904.
21. Elser: Proceedings Society Am. Pathologists, Chicago, 1905.
22. Jaeger: Deutsche med. Wochenschr., XXV, 1899.
23. Weichselbaum: Centralblatt für Bakteriologie, XXXIII, 1903.
24. Frothingham: Am. Med. Times, N. S., VIII, 1864.
25. Gifford: Boston Med. and Surg. Journal, 1873.
26. Hammer: St. Louis Med. and Surg. Journal, Vol. II, 1865.
27. Corbin: Gaz. de Paris, 1848.
28. Jourdes: Histoire de l'épidémie de meningitis cerebrospinal in Strasbourg in 1840.
29. Mayne: Dublin Journal, 1846.
30. Gahlberg: Wiener klin. Wochenschrift, No. 23, 1886.
31. Ziemssen: Deutsches Archiv für klin. Medizin, 1865.
32. Berdach: Wiener med. Presse, 1896.
33. Heubner: Encyclopædia, Vol. IV; article, "Cerebrospinal Meningitis."
34. Magail: Res. des. Mém. Méd., LIX, 1845.
35. Siedamgrotzky and Schlegel: Archiv für wissen. und prakt. Tierheilkunde, Vol. XXII.
36. Johne: Deutsche Zeitschr. f. Tiermedizin, 1897.
37. Holbrook: Boston Med. and Surg. Journ., 1865.
38. Elser: Proc. Soc. Am. Patholog., Chicago, 1905.
39. North: A treatise on a malignant epidemic in New York in 1811.

40. Herman and Kober: Berlin. klin. Wochenschr., 1887.
41. Friis: Virchow-Hirsch's Jahresberichte, 1892.
42. Singer: Wiener med. Wochenschr., 1869.
43. Baxa: Wiener med. Presse, 1867.
44. Brookes: Medical Press, Western New York, 1888.
45. Draper: Am. Med. Times, N. S., IX, 1864.
46. Baudin: Arch. gen., April, 1849.
47. Horner: Phila. Med. and Surg. Reporter, 1869.
48. Broussais: Histoire des meningitis cerebrospinal en France, 1837-1842, Paris, 1843.
49. Petersen: Deutsch. med. Wochenschr., No. 36, 1896.
50. Richter: Breslauer ärzt. Zeitschrift, 1887.
51. Drigalski: Deut. med. Wochenschr., 1905.

THIOSINAMINE IN THE TREATMENT OF TINNITUS AURIUM.¹

BY S. MCCULLAGH, M.D.,

OF NEW YORK;

ASSISTANT SURGEON, MANHATTAN EYE, EAR AND THROAT HOSPITAL.

PROBABLY the most distressing and annoying symptom, both to the physician and to the patient, that the otologist is called upon to deal with is tinnitus, and any drug that can be relied on to relieve this condition is sure of a warm welcome. The list of drugs recommended and used for its relief is strong proof of the inefficacy of them all, and the fact that most of those employed for this purpose accomplish their object, if at all, by their general constitutional effect, usually a depressant one, prohibits their long continued use without deleterious effects to the general organism. The great desideratum in any drug is that it shall act directly and singly on the affected part and that its action shall be confined to that part. In every morbid process the prime object is the removal of the causative factor, and by that means the relief of the symptoms. Directly or indirectly tinnitus is generally caused by an increase of, or change due to, connective tissue in the middle ear with which are associated other factors acting in different ways. In the drug under consideration, thiosinamine, we have one which has a direct, selective and absorptive action on low-grade tissues, and especially on new connective tissue with no action on the general organism except a slightly tonic one. Exactly how it acts is still in doubt, as is the selective action of KI in specific disease. Suffice it for our present purpose that such an action resides in the drug, and we can readily see the wide field of usefulness that is opened up, not only in otology, but throughout the whole of medicine.

Thiosinamine or allylsulphocarbamide, which was first used by von Hebra in 1892 for lupus, although it was known before that time, is made by mixing 2 parts of the oil of black mustard, 1 part of absolute alcohol and 7 parts of aqua ammoniæ, warming for a few hours on a water bath at a temperature of 104° F., and then evaporating to dryness. The odors of mustard and ammonia are driven off, and, on cooling, glistening, white, acicular crystals of thiosinamine are deposited. It has a slightly bitter taste and a garlicky odor. It is sparingly soluble in cold water, soluble in 2 parts of warm water, and freely so in alcohol and ether.

In most of the cases reported, and in practically

¹ Read before the Section in Otology, New York Academy of Medicine, January 12, 1905.

all reported by German authors, the mode of administration of the drug has been by hypodermic injection. A 10 to 15 per cent. alcoholic solution is used, or an aqueous one of the same strength, to which glycerin has been added to prevent the decomposition, which takes place rapidly in aqueous solutions. It has been used in this way by von Hebra,¹ Tousey,² Newton,³ Silferskiold,⁴ Van Hoorn,⁶ Glass⁷ and others. Suker,⁸ Beck,⁹ and Somers¹⁰ have given it by mouth. Unna⁶ has used it in soap and plaster muslin. All of the writer's experience with the drug, which he has been using for more than a year, has been with its administration by the mouth. He can see no good reason why it should be given hypodermically, as an immediate effect is not anticipated, but he can see many disadvantages such as the pain and discomfort of the injection, the danger of infection, the necessity of seeing the patient at frequent intervals over a long period of time, the amount of time consumed at each treatment, and the aversion of many patients to hypodermic medication. Keitel¹¹ reports a case of cutaneous anesthesia following the use of the drug in this way. The dose is from $\frac{1}{2}$ to 3 grains t.i.d., commencing with the weaker dose and increasing as necessary. It may undoubtedly be used hypodermically to good advantage where its exhibition causes digestive disturbances, but in most cases these are readily overcome by the temporary withdrawal of the drug.

Practically speaking, this drug has no constitutional effect except a slightly tonic one. Von Hebra has administered it to dogs, which remained perfectly normal, although doses, in proportion to their weight, 10 to 20 times greater than those used in man, were given. The only thing noted was a ravenous appetite and an increase in weight. Richter¹² has studied its action on the blood, and finds that in most cases there is a primary leucolysis (from 14,000 to 4,000) followed by a secondary leucocytosis. The primary action takes place about a half-hour after the injection; the secondary about four hours later. There is an increase in the polymorphonuclear leucocytes and a slight increase in the hemoglobin. Lowit¹³ thinks the leucocytosis is due to the leucolysis, since it calls into the circulation new blood elements from the blood, making organs, and so must necessarily stimulate the activity of these organs. The real cause of the leucolysis is still unknown. The drug is an active alterative, and its effect on pathological conditions is powerfully absorptive by increasing the activity of the lymphatic system. Richter¹² says in its action on the blood it is in the same class as such substances as peptone, pepsin, hemialbumose, nuclein, tuberculin, urea, uric acid, etc.

Von Hebra and Tousey have noted diuresis in some cases. The writer has failed to note this effect. Van Hoorn and Keitel, both of whom used large doses, noted headache and lassitude after several weeks' treatment. The only unpleasant effect with which the writer has had to

contend in its use is its tendency in some cases to "upset the stomach." This is not severe, and a slight feeling of distress and nausea is usually all that is complained of, although in one patient, a very neurotic woman, it was necessary to stop the drug entirely on account of the gastric disturbance. One patient complained of diarrhea, and several have accused the drug of constipating them, but so many other factors enter in here that he is not at all convinced that this was due to the drug. In one patient the ingestion of even a half-grain was promptly followed by urticaria. One complained of a constant smell of onions for the first two weeks or so.

Regarding its local action von Hebra says that two hours after its injection in lupus the diseased part becomes red and swollen, the amount of reaction depending on the extent and intensity of the disease. The normal color returns in twenty-four hours. Teleky¹⁴ reports the histological examination of a piece of tissue from a patient suffering from rhinoscleroma, who had been using this drug. It showed numerous round cells and Mickulicz cells, with the epithelial cells in a state of hyaline degeneration. The connective tissue between the different granulations appeared loosened. The connective tissue nuclei were very indistinct, and their separate contour was lost. In other places the nuclei had been extruded and the whole strand of connective tissue had a strikingly swollen aspect, the nuclei being distended and having a puffy appearance. Lewandowski, who refers to this in his article, suggests that, being a derivative of the mustard group, with its active, irritating, hyperemia-causing action, it acts as a lymphagogue by some micro-chemical action. He confesses, however, that this is not a satisfactory explanation.

So many pathological conditions are due to or kept up by new connective tissue that the wide range of usefulness of such a drug is at once apparent, and even a casual review of the literature reveals a number of diseases in which it has been used with good results. Reports have been made on its use in lupus (von Hebra,¹ Tousey,² *et al.*) in inoperable tumors and cicatricial contractions (Tousey,² Lengemann²³), in keloid (Newton,³ Tousey²), in glandular enlargement (Roos,¹⁶ von Hebra¹), in heart disease (Roos¹⁶), in rhinoscleroma (Glas⁷), in chronic joint affections (Upson¹⁷), in urethral stricture (Hans¹⁸), in pelvic inflammations (Latzko,²⁰ Kalinczuk²¹), in leucoma of the cornea, capsular cataract, plastic iritis, ectropion, exudative choroiditis (von Hebra,¹ Suker,⁸ Black²¹), and in ear diseases (Tousey,² Beck,⁹ Somers,¹⁰ Randolph²²).

The contra-indications to the use of the drug are conditions in which the new connective tissue is serving some useful purpose, as the encapsulation of tuberculous foci, abdominal scars, etc.

The reported cases of ear disease in which this drug has been used are but scanty, although its theoretical utility is recognized by many writers. Beck reports five cases under no other treatment

than the administration of the drug. The results were indifferent. Later he used it in seven cases combined with the usual mechanical treatment and obtained much better results, although he reports no actual cures. Somers has used it in twelve cases. Two were cured; six so much improved that they ceased treatment; one was improved, and in three no improvement was obtained. He also finds only the combined treatment beneficial, and recommends the continuation of the drug for six weeks only, unless improvement is noted before that time. This appears to the writer too short a period for a thorough test of the drug, as in several cases in which he has used it no result was obtained in that length of time. Suker has used it six months before noting improvement. It is plainly apparent that the rapidity with which results will be obtained will depend very largely on the degree of sclerosis and the stage of organization at which the new connective tissue has arrived. We may expect more rapid and definite results in recent cases, and such a supposition is justified by the results obtained. As the drug acts on the connective tissue it is not to be expected that its exhibition alone will cause any marked improvement in the tinnitus or hearing. But by softening the sclerotic tissue in the drum membrane and around the ossicles, inflation and massage cause wider excursions of the drum and freer movements in the articulations of the ossicles and foot-plate of the stapes, as well as a more normal circulation of blood in this region. The rationale of the combined treatment as well as the inefficacy of the administration of the drug alone is at once apparent when these factors are taken into consideration. The drug merely puts the ear into a more receptive mood for treatment, so to speak. Its action on vertigo is a very positive and beneficial one. Randolph, Suker and the writer have noted vertigo following its use and Suker states that this symptom is overcome by increasing the dose, a statement which coincides with the experience of the writer. In all cases where vertigo was a complication prompt relief has been obtained.

The cases where failure may be anticipated are those in which there is a calcareous deposit around the foot-plate of the stapes or bony ankylosis of the articulations of the ossicles. Functional tinnitus is also an unfavorable condition for good results. The most favorable cases would seem to be those where the condition is one of hypertrophy of the connective tissue in the mucous membrane of the tympanum or Eustachian tube, or both.

The following cases were treated by the writer in his practice and in the clinic of Dr. T. P. Berens, at the Manhattan Eye and Ear Hospital. The cases were selected ones, in that the tinnitus had been of considerable duration (at least six months) and had resisted the usual form of treatment. I may say here that in all cases the catheter and otoscope were used in conjunction

with thiosinamine. Any abnormality of the nasopharyngeal tract received appropriate treatment. In four cases strictures of the tube were dilated by electrolysis. The cases in as far as possible are a consecutive series.

TABULAR REPORT.

	Cured	Much improved	Im-proved	No im-provement
Ot. Med. Chr. Cat.....	15	7	4	5
Ot. Med. Chr. Sup. (residual)....	5	0	0	0
Ot. Interna.....	0	0	1	1
Total.....	20	7	5	6

The conclusions that the writer would draw from his experience with thiosinamine are (1) that this drug exerts a markedly beneficial action on ear disease accompanied by the formation of new connective tissue; (2) that this beneficial action is due to an increased pliability of this tissue allowing the usual forms of treatment to accomplish their object better; (3) that its administration should always be accompanied by mechanical measures; (4) that as good results may be obtained by administration by the mouth as hypodermically; (5) that better and more prompt results may be obtained in recent cases; (6) that it exerts a beneficial action on vertigo; (7) that care should be used in looking for contraindications; (8) that better results may be obtained with it in the relief of tinnitus than with any drug used heretofore.

The writer has purposely refrained from speaking of the result of its use on the hearing, as his original object in the use of the drug was an investigation into its effect on tinnitus, and he has not kept careful or accurate enough records of tests to make his observations along that other line of any value. He may say, incidentally, that many of the patients under treatment have voluntarily mentioned or admitted upon inquiry a noticeable improvement in hearing, including those in whom the tinnitus was not very much improved. In many cases this improvement has been decidedly marked.

BIBLIOGRAPHY.

1. Von Hebra, *Monatsschr. für prakt. Dermat.*, XV, 1892, p. 337; *Internat. klin. Rundschau*, 1892, pp. 1497 and 1583; *Wien. med. Bl.*, XV, p. 605.
2. Tousey, *New York Med. Jour.*, May 2, 1896, p. 579, and Nov. 6, 1897, p. 624.
3. Newton, *ibid.*, March 2, 1897, p. 381.
4. Silferskiöld, *Canstatt. med. Jahresbericht*, 1896, p. 354.
5. Unna, *Review Boston Med. and Surg. Jour.*, CXLII, No. 8.
6. Van Hoorn, *Monatsschr. für prakt. Dermat.*, 1894, XVIII, p. 605.
7. Glas, *Wien. klin. Wochenschr.*, 1903, No. 11.
8. Suker, *Jour. A. M. A.*, August 9, 1902.
9. Beck, *Laryngoscope*, June, 1902.
10. Somers, *Merck's Archives*, Nov., 1902.
11. Keitel, *Char. Annal.*, Berlin, 1891-1892, p. 639.
12. Richter, *Wiener med. Wochenschr.*, 1893, No. 28.
13. Lowit, *Phys. der Blut. und Lymph.*
14. Teleky, quoted by Lewandowsky, *Therapie der Gegenwart*, Dec., 1903.
15. Lewandowski, *ibid.*
16. Roos, *ibid.*, Nov., 1903.
17. Upson, *Am. Med.*, January 25, 1902.
18. Hans, *Wien. med. Presse*, 1893, No. 8.
19. Latzko, *Wien. klin. Wochenschr.*, 1893, No. 6.
20. Kalinczuk, *Prager med. Wochenschr.*, 1893, No. 38.
21. Black, *Ophthalm. Record*, 1898.
22. Discussion, *Reference* 9.
23. Lengemann, *Deutsche med. Wochenschr.*, No. 13, 1904.

SOME OBSERVATIONS ON LEUCODERMA (ADDISON'S KELOID).

BY F. ROBBINS, M.D.,

OF NEW YORK.

THE circumscribed form of scleroderma, at the present state of our knowledge, is practically universally regarded by contemporaneous contributors to neurology as a clinical variety of the diffuse symmetrical form of the disease. Authorities are unanimous in placing scleroderma among the trophoneuroses without, however, insisting upon the impairment of nutritive nervous functions as a *sine qua non* of its symptom complex. As a matter of fact, although the neurologist admits trophoneuroses, anomalies of nutrition depending upon nervous origin, the demonstration of trophic nerves as such must as yet be numbered among the triumphs reserved for the ambitious worker in the field of experimental physiology and pathology. It is not the purpose of this paper to enter into question or discussion of the relationship and interdependence of vasomotor and trophic phenomena and anomalies. Theoretically, a number of reasons might be advanced in favor of the opinion that rather in the sympathetic nervous system than in the spinal ganglia should we look for the starting point of Addison's keloid. A return to the old and practically abandoned classification of the circumscribed form of scleroderma as a distinct disease may be contemplated as an eventual contingency. Certainly the best-supported theory of vasomotor pathological changes at the bottom of the disease does not seem to hold good for the lighter and circumscribed clinical variety.

There is a universal impression as to the rarity of scleroderma. It is stated by Croker, for instance, that only five cases have come within the scope of his wide clinical experience. When we stop to consider (1) the pronounced disfiguring and mutilating character of the disease, and (2) its prevailing occurrence in young females during the child-bearing period, we have found one appreciable factor for the reputation of rare occurrence; which factor will hold good for practically all nations and countries. Although it may be urged that such patients would be the first to seek professional assistance, it must not be forgotten that the average young woman has a marked tendency to procrastinate the seeking of competent advice and to resort to a system of self or quack tinkering (vide, chronic constipation, leucorrhea, adenoids, eczema). In this manner, the early case will go for a long time unrecognized, especially as it is generally unattended with constitutional disturbances; until the time is ripe, perhaps, for the manifestation of our second causative factor in apparent rarity of occurrence, viz., the voluntary disappearance from scenes of toil and strife by the sadly handicapped young women, with their entrance into a convent or similar secluding institution. The writer's experience along these lines has been

gathered in a Roman Catholic community, it is true, but the same conditions with very slight modifications very probably obtain elsewhere.

With regard to the obscure etiology, I suggest race mingling and modifications of the subcutaneous connective tissue dependent on the same as a possible causative factor. Of four typical cases of Addison's keloid in young natives of Cuba (all females) three were so-called "creoles," half-breeds, one almost entirely black, though no African strain in the direct ancestry could be ascertained.

It will have been remembered by this time that Addison's keloid is a morbid condition, in which hyperplasia of the subcutaneous connective tissue occurs, generally attended with edema and induration, succeeded by contraction and sometimes terminated by atrophy. Pigmentation and occasionally desquamation may appear as sequelæ. Inflammatory changes in the subcutaneous arteries, due to a vasomotor disturbance, are supposed to precede and induce the connective tissue proliferation; and they characterize the diffuse form of the disease anatomically. Without the assistance of the microscope on specimens obtained from the circumscribed form of scleroderma, it is perhaps permissible to refuse blind acquiescence in this conclusion.

The disease not being fatal nor even detrimental to life, the clinical findings are practically all that can be contributed by the general practitioner fortunate enough to cull by the wayside such a rare specimen of disease as Addison's keloid. One of my four cases will suffice for illustration, variations in the series being of slight and practically irrelevant character.

The patient was a young woman, twenty-one years of age, daughter of a native Cuban father and a white mother of Canadian descent. Although of no etiological bearing on her condition, it is of some interest that the patient was the seventh child and only daughter born of her mother's first marriage. The six older brothers were normal, as well as the seven younger boys constituting the second series of seven of her mother's second matrimonial enterprise. Father died of pulmonary tuberculosis. No congenital or acquired syphilis. Patient, a resident of Havana, Cuba, had an uninteresting childhood and uneventful puberty. Some dysmenorrhea is complained of, but not insisted upon. When seventeen years old, four years before she came under observation, she left home for a visit with a friend in another part of the island. On her return a fortnight afterward her mother says she noticed a small white spot, the size of a pea, above patient's left eyebrow near bridge of nose, which had barely roused the patient's attention and was referred to as a "pimple" on her part. This blotch steadily increased in circumference, until a triangular-shaped area extending over the entire left supraorbital region was involved in the discoloration. There is no history of induration or contraction or change of cutaneous

sensibility, with the exception perhaps of a slight degree of psychro-esthesia on application of cold water. Hydrotherapy and inunction with a simple ointment in common use in her locality were the only remedial measures resorted to, and patient had begun to cultivate a spirit of philosophy regarding her disfigurement, when about six months after the appearance of the first blotch, she discovered accidentally that another had developed on the back of her neck, above and between the shoulder blades, having already reached the size of a baby's hand and very nearly its outlines. Patient became alarmed and a thorough investigation on her part resulted in the discovery of a yellowish indurated triangular spot on the back of her left hand, which gradually was observed to become softer and paler, until it presented the dead-white appearance of the two other blotches. Within the next eighteen months the upper part of the trunk became mottled with irregularly shaped white spots to such an extent that the gross picture presented by patient was that of a brown and white spotted calf, the natural skin being in this case of a warm bronze tint and appearing darker by contrast with the dead-white of the blotches. With the exception of the triangular spot covering the back of the left hand, all these blotches are said to have started as tiny, snow-white round dots, which spread out like a drop of water on marble and slowly infiltrated the surrounding tissues. The disease seems to have come to a standstill two years after its first appearance, no new blotches having formed in the interval. The under-extremities have almost entirely escaped, only one large round blotch presenting in the left gluteal region. This blotch is irregularly pigmented at the periphery, little yellow dots like liver spots interrupting the dead-white surface. There is absolutely no induration or contraction to be made out at seat of lesions; on the contrary, the thin white skin seems to lie rather loose over the subcutaneous connective tissue. If there was infiltration, absorption must have taken place to such an extent that there is now no clinical evidence of its presence. Leucoderma instead of scleroderma would designate the condition. The border line of minute dilated blood vessels, of which we learn in text-books (Collins, Tropho-neuroses), could no longer be made out by the naked or armed eye, with all the opportunity accorded by the patient and all the attention bestowed by the physician. There was no gradual merging of healthy into affected skin, the spots on the contrary presenting the appearance of thin white paper fragments pasted over the body in irregular distribution, cutting off quite abruptly. To the touch, the affected surface is distinctly softer and cooler and the blotches may be approximately located without the assistance of the sense of sight.

There is some slight quantitative and qualitative change in cutaneous sensibility, a feather not being felt at all on back of left hand and a pin

point only after a comparatively long interval. Psychro-esthesia is quite marked, especially over back of neck and on forehead.

A striking feature in this case is its lack of even a tendency to unilateral distribution, for while the larger blotches are more numerous on the left side, the right side participates in the disease with a liberal dappling over chest and back. The extremities are affected to a slighter degree than the trunk, with the exception of the left hand.

Although the disease may be considered to have come to a spontaneous standstill, there is no indication whatsoever of a beginning *restitutio ad integrum*. The very decided neurotic symptoms of the patient must be interpreted as resultant, and not causative, factors in the pathological process. A condition practically tending to isolate a human being, especially in the period of adolescence, must inexorably lead to introspection and depression and some form of psychic deterioration. Here we have a young girl, happy and healthy as they go, stricken with a disease simulating a condition like leprosy to the ignorant part of her surroundings. It would take a stoic under the circumstances not to develop nervous instability or disturbance of trophic equilibrium.

Assuming derangement of innervation of the capillary vessels, which undoubtedly is present at some stage of scleroderma in either of its clinical manifestations to be the starting point of the disease, we are at once struck with a potential obscure relationship to Raynaud's disease, synonyms for which are neuropathic gangrenous tropho-neurosis and local asphyxia. In Raynaud's disease there is contraction of both afferent and efferent vessels of the affected parts, the spasm persisting in the arteries after veins and capillaries have temporarily recovered (Collins). Theoretically, a local inhibition of the vasodilator mechanism, subsequent to spasm of capillary vessels, would seem to account for the retarded circulation and resultant anomaly of nutrition inseparable from the development of Addison's keloid. That the patient had intermittent bradycardia (64 to the minute) may or may not be considered in this connection.

I am inclined to the belief that morphea or Addison's keloid is dependent upon peripheral nutritive changes; probably due to a toxin introduced from without. Perhaps, as Marie and other observers claim for the poison of tetanus, the morphea toxin is absorbed by the peripheral nerve endings and transmitted to those ganglionic nerve cells for which it has a special affinity and in which a degenerative process is sure to follow. The remarkable resemblance of the blotches to old vaccination marks is suggestive; also their somewhat similar behavior toward attempts at removal. The patient being willing to submit to experimental medication in hopes of a cure, I have been at liberty to try scientific measures directed to the vasomotor system as

well as empirical proceedings. The condition has remained practically the same, although some benefit has been obtained from the use of copper sulphate externally, twenty grains to the ounce of vaseline. One small blotch on her back has been made to disappear by application of glacial acetic acid, which was, however, too painful and too risky for more general use. The iodide of potassium internally was freely exhibited with the customary beneficial results, and the patient's tenus raised by scrupulous attention to general hygiene and regular performance of the vegetative functions, deep-breathing exercises to promote oxidation proving especially useful, while the local application of dry heat seemed most grateful to the patient. I regret to say that the thyroid medication recommended by Lustgarten has not been tried in this instance; however, none of the features of myxedema were visible or even intimated.

Ultimately, I would call attention to the fact that although exposure to wet and cold are counted by authorities among the leading causal factors in the production of circumscribed scleroderma, the disease has been observed to occur in rather a high percentage of the total cases reported, in a warm and equable climate, like that of the northwestern part of Cuba.

It should be stated that the young woman presented the physical signs of pseudoleucemia, spleen and lymph glands being moderately enlarged, and pressure-phenomena (dyspnea, dysphagia) in addition to symptoms of anemia and suboxidation. Microscopical examination of the blood showed only the relative alteration in proportion of leucocytes to red blood-cells, due to diminished number of reds. There were many eosinophiles. There was marked poikilocytosis, some nucleated reds, and decrease in relative proportion of hemoglobin.

I leave to the decision of the competent in how far the extravasation of the blood, which has been observed in the leucemias conjointly with secondary changes in the blood vessels, predisposes to the development of what is considered as a trophoneurosis in general and as Addison's keloid in particular.

THE MEDICAL DEPARTMENT OF BILIBID PRISON AND SOME OF THE DISEASES AMONG THE PRISONERS.

BY W. R. MOULTON, M.D.,
OF BILIBID, P. I.

The Medical Corps of Bilibid Prison consists of a Resident Physician, two American Hospital Attendants, an American Druggist, two Filipino Hospital Stewards and forty prisoners; three Americans and thirty-seven Filipinos, who have been trained to act as nurses and attendants.

The work of the department is carried on in two hospitals, viz., Hospital "A," the main Prison Hospital, in the prison proper, and Hospital "B," the tuberculosis department, situated

on the south bank of the Pasig River, just east of the Ayala bridge.

Hospital "A" is situated in the northern part of the Presidio, or Penitentiary, in a separate stonewall inclosure, isolated from the remainder of the prison. The hospital has an *Observation Ward*, in which are entered all incoming sick, who are there bathed, put through a thorough physical examination, accompanied by a microscopical examination of blood, sputum, urine or stool, as the case may be, diagnosed, and sent to appropriate wards; five *Quarantine Rooms*, in which are received all incoming prisoners, who are there subjected to a searching examination for evidence of infectious diseases, vaccinated and, after twenty-four hours, assigned to their respective brigades; *Isolation Rooms*, where the various infectious diseases are treated when present; a *Dark Room* for the treatment of diseases of the eye, ear, nose and throat; a *Clinical Ward* for the treatment of skin diseases and those of a minor surgical nature; a general *Medical Ward*, a *Surgical Ward*, *Operating Room*, *Diet Kitchen*, *Drug Room*, *Laboratory* and *Morgue*. In a separate stone-wall inclosure is situated the woman's Ward, managed by long-term women, who have been specially trained for the work.

Hospital "B" is a large roomy building, open on all sides and surrounded by a spacious yard, well shaded by tropical vegetation. The sun and wind have free access to all parts of the grounds and building, insuring to an unusual extent good ventilation. The hospital contains at present 60 men afflicted with pulmonary tuberculosis.

The work of Hospitals "A" and "B" is conducted under the immediate supervision of the American hospital attendants, who take orders from and are responsible to the Resident Physician. The work of Hospital "A" commences at 6 o'clock, when the American ward stewards start their respective squads to work in the day duties. The Resident Physician holds "sick-call" at 6.30 A.M. in the front of the hospital, prescribing for all men who present themselves for treatment; as each man comes forward he is diagnosed and assigned to the skin and minor-surgical ward, eye, ear, nose and throat room, or admitted regularly to the hospital, as the case may be.

During the past twenty months 17,903 men reported at "sick-call," 32,315 visits were made to the various hospital clinics and 2,080 men were admitted to the hospital; of this number, 530 died and 1,550 have recovered.

Before entering upon a description of the principal diseases occurring among the prisoners, the writer wishes to lay stress upon the fact that, with few exceptions, such as lobar pneumonia and the catarrhal diseases, they are contracted previous to admission to the prison.

Diseases of the Respiratory System.—(a) Lobar pneumonia has been present in 388 cases admitted to the hospital during the past twenty

months; of these 128 have died. The disease is unusually virulent, often attacking an entire lung, and in some cases as much as two-thirds of the other as well, being attended by fever, ranging from 104° to 107° F., which, in some of the cases does not conform to the typical crisis-type of the disease, but lingers on for twelve to fourteen days, gradually subsiding by lysis. There is usually delirium, at times active, requiring restraint, although in some cases the mind is dull and heavy, tending to unconsciousness. Toxemia is very marked, the gastro-intestinal, circulatory and urinary tracts frequently showing the ravages to an extreme degree. This disease is next to tuberculosis as a death producer, even claiming more victims than tuberculosis some months of the year. (b) Pulmonary tuberculosis has been present in 274 of the men admitted to the prison during the past twenty months; of this number 165 have died, 49 have recovered and 60 are yet in hospital; of these 60, 20 are now showing negative sputum and are gradually improving in every respect.

Diseases of the Intestines.—Intestinal amebiasis has been present in 360 of the cases admitted to hospital during the past twenty months, with 54 deaths and 306 recoveries; almost without exception, the cases coming to autopsy have been of long standing, without treatment previous to admission, and were most extensively ulcerated, so much so, that in many cases it was difficult to find a normal patch of membrane throughout the entire extent of the colon.

Diseases of the Nervous System.—(a) Cerebrospinal meningitis: During the last week there have been two cases of purulent epidemic cerebrospinal meningitis occurring in men recently sent to Bilibid from Samar; both cases had pneumonic symptoms upon admission, although the process in the lungs did not advance beyond the stage of engorgement; there was no stage of mental excitement, but instead there was an apathetic tendency from the start, which soon increased and passed on to unconsciousness, the patients dying in the fifth and sixth days of the disease; upon autopsy the cerebral and spinal meninges were found to be markedly injected and an abundant purulent fluid present, which, under microscopical examination by Dr. Hertzog, showed the *Diplococcus intracellularis meningitidis* of Weichselbaum; the lungs were engorged and edematous spleen moderately enlarged; kidneys showed parenchymatous changes.

(b) Beriberi: There have been 34 cases of acute beri beri among the prisoners during the past twenty months; these cases developed among recent arrivals as well as among old prisoners, and were exceptionally severe and of short duration. The cases usually were admitted to the hospital with symptoms of cardiac distress, more or less general edema, usually more marked in the face and trunk than in the extremities, and pains of the prickly burning character in the legs. The onset of pulmonary edema, which was the

cause of death in the 14 who died, came during the last week and was usually fatal within 48 hours. The patellar-reflex was usually hyperactive, although in some of the cases, which were found to be second attacks, it was dulled or nearly absent. These cases all ran a mild febrile course, the temperature ranging from 99.4° to 101° F., seldom going above; one very noticeable feature of these cases was the fact that consciousness was invariably retained up to the last moments of life. Upon post-mortem examination, the heart was found to be dilated and markedly distended with blood, muscle substance being pale and flabby, the lungs were edematous, pleural cavities and pericardium containing about 100 c.c. of serum, kidneys usually normal, other organs normal. The 20 cases that recovered ran an uneventful course, terminating in recovery after three or four weeks. There were three women among this number, all of whom died; one who was pregnant became so weak that premature delivery was performed by applying forceps at the superior strait, delivering a well-nourished seventh-month fetus that had apparently been dead about twenty-four hours; this woman reacted to stimulants and lived about ten days, finally dying from pulmonary edema.

Malarial Fever.—During the past twenty months there have been 280 cases of tertian and 34 of estivo-autumnal fever, with 9 deaths and 271 recoveries. The post-mortem examinations of those that died of malarial infection showed enormously enlarged spleens, engorged livers filled with pigment and fatty degeneration, and more or less chronic interstitial changes in kidneys. In the majority of these cases, the writer has found quinine given alone inefficient, even when given in enormous doses, and has been in the habit of reinforcing the specific with increasing doses of ergot and arsenic. This seems to reduce the size of the spleen and throw the parasites out into the circulation, where the quinine can exert its maximum effect.

About six months ago a man was admitted to the hospital complaining of fever, loss of appetite and giddiness; upon examination it was found that he was emaciated, had an enormously enlarged spleen extending to the crest of the left ilium and well under the umbilicus, and a hypertrophied liver protruding about 8 cm. below the costal margin, icterus of the skin and sclera, and considerable free pigment in the blood; the leucocytes were not increased in number, but there was marked oligocythemia; no parasites were found. The writer made a tentative diagnosis of malarial cachexia, which was afterward changed at the suggestion of Dr. Musgrave, who made an exhaustive examination of the case to kala-azar. At the autopsy the spleen and liver were found to be extremely hypertrophied, the kidneys showed interstitial changes, lungs and heart were normal, as were the stomach and intestines.

Disease of the Kidneys.—Eighty per cent. of all hospital admissions for other causes show

chronic interstitial or parenchymatous nephritis; acute nephritis is rare; there having been but seven cases admitted to the hospital during the last year.

The presence of such an alarming amount of renal diseases is certainly remarkable and is yet unexplained; certainly, at first thought, it would seem that in the tropics where the skin is so active, the kidneys would suffer during acute disease far less than in the temperate climate; the subject is one well worth investigation.

During the past twenty months there have been 215 cases of varicella in the adult in Bilbid; the disease runs a mild course, lasting about ten days, and is characterized by a continued fever ranging from 101° to 104.7° F., accompanied by pains of invasion in head and limbs, anorexia, constipation and the appearance during the first twelve hours of a general distributed eruption, which rapidly runs through the stages of macular, papular, vesicular and crust; thus by the third or fourth day the patient may have three crops of lesions in the various stages of eruption. The crusts fall off about the latter part of the second week, leaving a bleached spot on the skin, but not pits; there have been no deaths from this disease.

Surgical Diseases and Injuries.—During the past twenty months one strangulated and sixteen simple herniæ have been operated upon, with no deaths and no recurrence; the majority of the cases have been direct inguinal hernia, almost without exception there has been coexisting disease of the tunica or testicle in these cases.

Fifteen hydroceles of the tunica vaginalis have been operated upon by the open method, with no deaths and no recurrences; as the majority of the cases were old and indurated, complete dissection of the tunica has been performed; in about one-half of the cases there has been found a muddy deposit on the inner surface of the tunica. In the cases that have been examined microscopically, *Filaria nocturna* have been found, so that the writer is inclined to attribute this cause to possibly all the cases, although examination of the inguinal lymphatics has been made, as yet the parent worm has not been found.

Elephantiasis of scrotum and testicles has been present in one man coming from the Southern Islands; in this case the lymphatics were found markedly hypertrophied, but no worm was found. The Indian operation was used in amputating the scrotum, the patient making an uneventful recovery.

Sarcoma has been present in two cases, one involving the lower jaw and the other the gluteal region; the first was treated by excision of the left half of the inferior maxilla; recovery. The second consisted of an enormous tumor as large as a man's head, depending from the right buttock; extirpation was attended with complete success.

There have been but two cases of carcinoma;

one of the larynx and one of the testicle. The former was considered inoperable, whereas in the other enucleation of the testicle and lymphatic glands resulted in recovery.

The scarcity of malignant growths has been a very remarkable thing here, and has been the source of considerable thought on the part of the writer. The inference seems to be that malignant growths increase in direct proportion to the degree of civilization of a people.

Gunshot Wounds.—The recent attempted outbreak served very materially to swell the list of gunshot injuries treated in the hospital during the past twenty months. There were 27 cases of multiple gunshot wounds of the head, chest and abdomen; 19 of the extremities, and the following compound comminuted wounds, viz.: two compound comminuted gunshot wounds of tibia; one compound comminuted gunshot wound of lower end of femur; one of middle-third humerus; one of both knees; one of left ankle and tarsal bones; one of right forearm.

INFECTION OF THE GALL-BLADDER IN TYPHOID FEVER.

BY S. P. KRAMER, M.D.,

OF CINCINNATI, OHIO;

LECTURER ON THE PRINCIPLES OF SURGERY, MEDICAL DEPARTMENT,
UNIVERSITY OF CINCINNATI.

In the autumn of 1904 there occurred in the practice of Dr. A. L. Knight, of Madisonville, Ohio, a house epidemic of typhoid fever as follows: The first case, Clarence B., age twelve years, taken sick September 27, 1904, and recovered November 20, 1904. Second case, Mrs. B., his mother, taken sick December 28, died February 5, 1905. Third case, Emily B., aged eleven years, taken sick January 6, recovered February 10, 1905. Fourth case, Marie B., aged nine years, taken sick January 12, recovered February 10, 1905. Fifth case, David B., aged three years, taken sick January 18, recovered February 15, 1905. Sixth case, Blanche B., aged seven and one-half years, taken sick February 5, recovered April 15, 1905.

It is the case of the mother that we desire especially to describe. Her case was a specially severe attack of typhoid, her temperature range being quite high, reaching 104° F. very early in the disease and at times going as high as 105° F. In the latter part of the fourth week of the disease she seemed to be convalescent, the temperature having remained normal several days. On the night of January 31, 1905, the thirty-fifth day of the disease, she had a chill, the temperature rising suddenly to 104° F., with tenderness and pain in the right hypochondrium. The temperature then remained high for the succeeding days, the pain and tenderness abating somewhat. On February 4 I saw her for the first time. She was greatly emaciated and exhausted, with a weak pulse, 120 per minute, a temperature of 102° F.

The right side of the abdomen was rigid, and there was great tenderness over the right iliac fossa. The right rectus muscle was much more tense than the left, there was considerable tympanites, with a sense of fluctuation down deep, as though there was fluid beneath the gaseous accumulation which caused the tympanites. The bowels were constipated and not to be moved by enemata. At times she regurgitated a bile stained secretion from the stomach, but did not throw up any large quantity.

The provisional diagnosis was a typhoid perforation on the right side (where it most often occurs), with the possibility of tuberculous peritonitis kept in view on account of the presence of fluid in the abdomen. Laparotomy was recommended and performed the following day, at the home of the patient, under rather trying circumstances.

The abdomen was opened in the right iliac fossa as for the removal of the appendix. On entering the peritoneal cavity it was found that some hollow viscus completely filled the cavity, bulging into the incision. This viscus was accidentally opened and, to our surprise, proved to be the stomach. This organ was so enormously dilated that it reached to the symphysis and had compressed the bowels against the spinal column so that they did not appear to view. After having punctured the stomach accidentally and after the escape of a quantity of gas, it was decided to enlarge the opening and drain its contents by turning the patient on the side so as to provide room for working. This was done and a wash-bowlful of bile-stained stomach secretion removed from the organ. The incision in the stomach was then closed by suture. Only after the complete emptying of the stomach were we able to see what we were about.

In passing, it might be well to state that it was this fluid in the widely dilated stomach that had given us the feeling of fluctuation.

It was also a very valuable lesson to me in another regard. In a case of peritonitis with tympanites it is common to assume that the gas is all in the bowels and that to relieve the condition it is necessary to clean out the bowels. In this case the intestines were empty and pushed back against the spinal column, all the gas being in the stomach. Hereafter in a case of peritonitis I shall make it a rule to syphon the stomach as well as to empty the bowels.

To go back to our case: After emptying and suturing the stomach it was found that there was no typhoid perforation present. The gall-bladder, however, was found to be enormously distended, pink in color and about the size of a Bartlett pear. The incision was extended upwards, the gall-bladder brought into the wound, gauze being packed about it, and the viscus incised. About two ounces of clear serum and pus was removed, followed by the evacuation of 35 gall-stones.

These were about the size of a hazel-nut, light

gray in color, composed chiefly of cholesterin. The gall-bladder was sutured to the wound, drained and the wound closed, except at the point of drainage, as rapidly as possible by through and through sutures.

The patient died six hours after the operation.

Unfortunately no culture was made from the pus. The stones were examined as follows: A stone was picked up by a sterilized forceps and the outer surface seared in the flame. It was then dropped into a sterile Petri dish, pulverized with a sterile pestle and then the culture medium poured into the dish. From this there was obtained a pure culture of the typhoid bacillus. The bacillus had all the biological characteristics of the typhoid bacillus and very promptly agglutinated with blood obtained from the child Blanche, who was sick at the time of the operation.

Cholecystitis as a complication of typhoid fever is not very common, yet it occurs sufficiently often for us to be on our guard concerning its possible presence.

When we consider that typhoid fever is a metastatic infection, that bacilli in every case and at some time are circulating in the blood, and when we consider what considerable rôle is played by the liver as an excretory organ, it is a matter of surprise that disease of the bile passages does not occur more frequently in typhoid fever. It may be, however, that such is the case, but that we have been somewhat slow in recognizing the relation of the disease to this complication.

As long ago as 1888 Fütterer and Anton (*Münchener med. Woch.*, 1888, p. 35) first called attention to the frequent presence of typhoid bacilli in the gall-bladders of individuals dying from typhoid fever.

Gilbert and Girode (*La Semaine Medicale*, 1890, No. 58) published cases in which inflammatory changes in the gall-bladder due to typhoid infection were found at autopsy.

Chiari (*Zeitschrift für Hygiene*, Vol. 15) examined 22 typhoid cadavers and found the typhoid bacillus in the gall-bladder of 19, in most instances in large numbers. In 10 of the 19, there were signs of inflammation, in 3 there were areas of necrosis of the mucosa. He has further made the very interesting suggestion that relapses in typhoid may be due to reinfection from the gall-bladder. The circumstance that the relapse so often accompanies the increase of food given to the convalescent patient he suggests might be due to the fact that the increased feeding during convalescence greatly increases the flow of bile and consequent pouring into the bowel of highly infected bile.

Osler reports (*Transactions of American Physicians*, Vol. xii) that of 14 typhoid cadavers, seven showed typhoid bacilli in the gall-bladder. Councilman regards the gall-bladder as a sure site from which to obtain a pure culture of the typhoid bacillus. Holcher (*Münch. med. Woch.*, 1891) reported that of 2,000 fatal cases of typhoid 5

cases showed diphtheritic inflammation of the gall-bladder with suppuration. In one case there was perforation of the gall-bladder and peritonitis. Bernheim was the first to suggest the possible causal relation between typhoid fever and gall-stones. Gilbert and Domenicini (*Societe de Biologie*, June 16, 1894) were the first to demonstrate the presence of bacilli in the gall-stones. Fournier's (*Thèse de Paris*, 1896) investigation first demonstrated that typhoid bacilli might form the nucleus of gall-stones. He found that out of 100 cases of gall-stones (removed post-mortem) 38 contained bacilli in the interior. The colon bacillus was the one most frequently found and the typhoid next. Similar results were reported by Dufourt, Chiari and Fütterer (*Deutsche Chirurgie*, 1897, Lfg. 45c., 2. hälfte, p. 204). Millian (*Gazette Hebdomadaire*, 1896, p. 1,137) obtained the typhoid bacillus in pure culture from gall-stones removed post-mortem from a patient that had died on the sixteenth day of the disease. Maurice Richardson injected agglutinated typhoid bacilli into the gall-bladder of rabbits and found gall-stones four months after at autopsy. Droba (*Wiener klin. Wochenschrift*, 1899, p. 1,141) reports a very interesting case in which a woman, aged fifty-three years, who had had typhoid fever seventeen years previously, was operated upon for cholecystitis and gall-stones. The gall-bladder was removed and opened outside the body under aseptic precautions. Cultures made from the fluid found in the gall-bladder proved to be pure cultures of the typhoid bacillus. Cultures made from the nuclei of the gall-stones present gave a like result. In these investigations the method employed was practically the same as that described by me.

Viable typhoid bacilli have been found in gall-stones obtained at periods of time varying from the sixteenth day of the disease to seventeen years after recovery from the attack. In my own case the patient was operated upon on the fortieth day of the disease. It was a matter of surprise to me to find that gall-stones of such size and number could have been formed in so short a time.

There is, however, one possible criticism that might be offered against regarding the fact that typhoid bacilli were found in gall-stones on the sixteenth or fortieth day of the disease, as proof that the stones were formed in that time. It might be urged that the gall-stones were already present at the time of the onset of typhoid fever, but that during the course of the disease the bile became infected and the stones (more or less porous) were bathed in a fluid culture of the typhoid bacilli. The presence of the bacilli in the center of the stone might thus be due to the fact that the micro-organisms percolated into the already formed stone from the infected bile. In order to determine this point the following experiments were made: Gall-stones were permitted to remain in liquid cultures of *Bacillus prodigiosus* for a varying number of days. They

were then removed, the outer shell sterilized by searing in the flame and the stone then pulverized as before and culture made from them. If now the *Bacillus prodigiosus* had percolated into the stone, it should have been found in the culture. This was, however, not the case, the plates remaining free from the *Bacillus prodigiosus* even though the gall-stones had remained in bouillon cultures for twenty days.

MEDICAL PROGRESS.

MEDICINE.

Intramuscular Injections of Mercury in Syphilis.

—It has become a pretty generally accepted fact that the most satisfactory way of administering mercury in the treatment of syphilis is by means of the intramuscular method. Both the soluble and insoluble preparations have their advocates. F. J. LAMBKIN (*Brit. Med. Jour.*, Nov. 11, 1905), from observations based upon 3,230 cases, is in favor of the latter, and of these, metallic mercury in the form of a cream is stated to be preferable. The objection to the perchloride is that its action is slow and unreliable, and injections of it cause pain and local irritation. Sozoidal of mercury acts in like manner. Benzoate of mercury requires large doses and needs the addition of cocaine to prevent the intense pain which it causes. Biniodide of mercury possesses all the disadvantages of the soluble salts. Calomel is absorbed very quickly and is very active, but it is intensely painful. Salicylate of mercury causes pain, and its reaction on syphilis is not nearly so marked or as rapid as that of either calomel or metallic mercury. The composition of the cream advised is: Hydrargyri 3 ss, Adipis lanæ anhydrid 3 ii, Paraffin. liq. (carbolized 2 per cent.) ad q. s. 3 v by volume. The finished product equals gr. i in ℥ x. Of this ℥ x as a maximum dose is injected once a week. The dispensing of this cream is of importance. The mercury and lanolin should be rubbed up together in small quantities in a glass mortar until every particle of the former is taken up. This will ordinarily take two hours. Then the carbolized paraffin is added, and, having been well stirred, the cream is poured into a wide-mouthed, glass-stopped bottle, all the angles of which are rounded so as to obviate collections of mercury. In connection with mercurial cream two difficulties must be noted: (1) That in cold weather it becomes semi-solid; and (2) when the temperature of the air reaches 90° F. the three constituents are apt to separate. Obviously both of these difficulties are easily overcome. The method of treatment advised is, beginning as early as possible, to inject gr. i of metallic mercury once a week until all active signs of the disease has subsided. This usually requires from six weeks to two months, then the number of injections is reduced to once a fortnight for three months. A rest from all mercurial treatment is then given for two months, and again a three months' course of fortnightly injections is given, followed by a two months' repose from treatment. Then the patient is kept under strict observation, and should any signs of relapse appear, further courses of three months' treatment, followed by the same amount of rest, is given. The average length of treatment and observation necessary is about two years.

Actinomycosis of the Lungs.—PEVERELL S. HICHENS, in reporting a case of actinomycosis of the lungs, states (*Brit. Med. Jour.*, Nov. 4, 1905) that this condition, though rare, is probably not so rare as is supposed. No doubt such cases are frequently diagnosed as cases of tuberculosis. Pathologically the lesions are in the main similar, but there are important minute differences. Actinomycosis, in contradistinction to tuberculosis, usually spreads by direct continuity irrespective of anatomical boundaries; lymphatics and lymphatic glands are rarely affected; the lesions are highly vascular and vessels are patent; there are fatty and granular degeneration of cells, and usually absence of giant cells. The following classification is suggested: (1) Bronchitic; (2) bronchopulmonary; (3) pleuropulmonary; (4) miliary or hemic. As regards the modes of infection of the lung, the fungus may be brought by the blood stream, be airborne, or spread directly from neighboring viscera. The diagnosis from tuberculosis may be impossible unless the characteristic fungus be found. As regards the situation of the lesion, it is much more often basal than apical. A diagnostic point of far more importance is the fact that the disease always tends to spread by direct continuity. Excavation does not take place to so great an extent as in pulmonary tuberculosis. Hemoptysis is comparatively rare. Pain, even of a severe character, is common. Temperature is more irregular and generally less elevated, and does not exhibit in so marked a degree the hectic type as that of tuberculosis. Two other thoracic diseases which may give rise to a suspicion of actinomycosis are chronic empyema and intrathoracic new growth. The diagnosis of actinomycotic empyema must rest upon the discovery of the fungus. However, a diagnostic point in favor of actinomycosis is that when a large abscess cavity is expected to be found no proper cavity at all is opened, but instead pus oozing out of spongy tissue. The symptoms of intrathoracic new growth may closely simulate actinomycosis, but in the latter "gooseberry-jelly" expectoration does not occur, nor in the former are subcutaneous abscesses found. Other rarer diseases to be borne in mind in arriving at a diagnosis are gangrene of the lung, hydatid cyst, pulmonary aspergillosis and infection by other streptothrices. As to the location of the lesion in actinomycosis generally considered, it is found that the pulmonary system is the seat of infection in 15 per cent. of all reported cases. The treatment of this disease is by iodide of potassium in large doses, by eucalyptus oil, and where possible, also by surgical interference. Most cases end fatally.

Membranous Colitis.—W. HALE WHITE publishes a study of 60 cases of membranous colitis (*Lancet*, Oct. 28, 1905). Fifty-one cases were women; none were men. In only one instance was the patient younger than twenty years of age. This disease usually shows itself between the ages of twenty and thirty years, and is only infrequently found to begin over the age of forty-five years. Very rarely, if ever, does it cause death of itself. In none of these 60 cases could death be attributed to the disease *per se*. Excluding eight patients who died from other causes and eight others who could not be subsequently traced, of the remaining 43, 21 got well; 16 did not, and 6 improved much. Age does not appear to influence the severity of the disease, but it is of importance to note that many of these patients who did not recover had had the disease

for a long time when first seen. The character of the mucus depends upon how soon it is discharged after its formation. If passed early it appears as glairy masses, like white of egg, not having had time to form shreds or a membrane. Histologically the membranes are structureless, and imbedded in them are various intestinal debris. The fecal matter often consists of scybolous masses, but in some diarrhea alternates with constipation, and then a stool may consist entirely of liquid feces, mucus, membranes and blood. Some patients pass intestinal sand, which most frequently is of a dull red color, though in some instances it is white or light brown with dark patches intermingled. Chemically, the sand is composed chiefly of calcium phosphate and oxalate combined with varying quantities of organic material, which is believed to be cholalic acid. In severe instances there is much abdominal pain. This is of two kinds, a dull constant pain, or in addition severe paroxysms felt chiefly in the center of the abdomen. These paroxysms are often associated with a desire to defecate, which, if done, gives relief. Most patients have a white furred tongue, and suffer from flatulence and anorexia. A certain number of patients owe their membranous colitis to organic disease, *e.g.*, malignant disease and appendicitis, and occasionally it is associated with enteroptosis. Twenty-one out of the fifty-one female patients had some disorder of the organs of generation. Five of these patients had membranous dysmenorrhea. The association with appendicitis seems to be of two types: First, the appendicitis inducing the colitis, and second, the appendicitis being only an appendical implication by this same membranous disease. The disease is generally met with in neurasthenics, and may exist without any structural evidence of enteritis. By far the most important part of the treatment is to keep the large bowel empty. The simplest way to do this is by aperients. Should this method fail, colon irrigation may be substituted. In exceptional cases right-sided colostomy may be advised. Some patients derive benefit from the application through the abdomen of high-frequency currents. Ordinary plain simple food is the best diet. Intestinal antiseptics are worse than useless. For diarrhea castor oil is the best remedy. Bad cases should be confined to bed, and all patients should be warmly clad, especially round the abdomen.

Graves' Disease.—HECTOR MACKENZIE discussed this interesting malady (*Brit. Med. Jour.*, Oct. 28, 1905). Attention has lately been directed to the parathyroids as an etiological factor. It is found that their removal almost invariably causes death, preceded by symptoms which very closely resemble those of fatal Graves' disease. Chances are found to have taken place in the thyroid gland like those of compensatory hypertrophy, save that the glands do not enlarge. It seems that the parathyroids play an important part pathologically in this disease, and their atrophy may be the cause of some of the more serious symptoms. Another important pathological feature which has been observed in fatal cases is the persistence of the thymus gland. Sometimes it is more than persistent; it is hyperthrophied. Other changes which are sometimes found are enlarged spleen, increased connective tissue in the neck, swelling of the lymphatics in the neck, thorax and abdomen, dilatation of the left ventricle, or there may be evidences of old endocarditis. This disease is five times more prevalent in women than

in men. It is rare in children or over the age of fifty. There are four cardinal symptoms: goitre, palpitation, exophthalmos and tremor. Besides these there are other less known symptoms, but which are hardly less important. In all acute cases and in chronic cases which are doing badly there is general emaciation, which may be extreme. This emaciation is directly related to an increase in the metabolism of the body. Along with the emaciation goes progressive loss of strength. Slight pyrexia is not uncommon; the elevation of temperature generally not exceeding 1° or 1.5° F. Patients manifest an intolerance to heat, but are tolerant of cold. There is increased action of the sweat glands and a tendency to flush either from exertion or emotion. Pigmentary changes of the skin are common. Itching is sometimes observed. Very commonly the hair becomes thin and dry. No important blood changes occur, and respiratory troubles, with the exception of dyspnea, are uncommon. Early edema of the extremities is due to cardiac weakness, whereas that occurring later is solid and infiltrating, like that observed in myxedema. The digestive functions are nearly always altered. The appetite may remain good or may be almost completely lost, the latter case being a bad sign. Often there is excessive thirst. Vomiting is common in severe and acute cases, and very often precedes a fatal termination. In chronic cases also vomiting may occur, and without apparent cause. Recurring diarrhea, sometimes alternating with constipation, is present throughout the course of the disease. Diarrhea is often troublesome in cases which are doing badly. Sometimes there is albuminuria, or there is polyuria, and occasionally glycosuria. Catamenial disturbances are frequent. The toxin of the disease shows a marked affinity for the nervous system. The patients are nearly always restless, excitable, irritable and emotional. Tremor, trembling and cramps occur, and paresis of the lower extremities may be observed in severe cases. The prognosis should be guarded. About 25 per cent. die from the disease, 25 per cent. drift into a condition of chronic illness, and about 50 per cent. make a fairly good recovery. In treatment the first essential is to procure rest of mind and body. Open-air is beneficial. Feed these patients carefully and give them an abundant, wholesome and nourishing diet. Massage, judiciously employed, may prove beneficial. A change of climate often does good, but care is more important. In emotional patients potassium bromide, gr. 20 to 40 at bedtime, is useful. Preparations of iodine act well in cases where the goiter is large or increasing in size. Tincture of belladonna given in doses of m 10 three times a day is of value. Phosphate of soda, given in doses of gr. 15 to 20 three times a day, has recently come into favor. Systeic remedies are to be prescribed according to indication. Treatment with thyroid gland usually makes the patient worse, but in certain cases it has proved beneficial. The other animal extracts are useless. Treatment may be directed locally to the thyroid, the eyes or to the heart, according to symptoms. The use of electricity has proved disappointing, but cases of benefit from the use of the X-ray have been reported. Were it not for the part obviously played by the thymus gland in this disease, surgical interference would seem the most rational method of treatment, but the risk is too great to justify the adoption of the operation, save in exceptional cases.

Abortive Pneumonias.—Abortive pneumonias, lasting no longer than twenty-four hours, have been the object of special study by A. BECHTOLD (*Munch. med. Woch.*, No. 44, 1905). The symptoms common to all cases are chill, high fever and defervescence by crisis with profuse perspiration. The physical signs vary very much; thus there may be normal resonance, tympany or well-marked dullness. Where the percussion note was changed the diagnosis could be easily made by the presence of bronchophony and fine râles. Typical bronchial breathing is usually rare, but râles are generally present, and there may be signs of involvement of the pleura. The sputum is only seldom characteristic. The reason for the short course of the disease varies; sometimes the bodily resistance of the patients is well-marked. More often, however, the bacteria are of diminished virulence. Small epidemics of abortive pneumonias, affecting all the members of a family have been frequently observed by the author.

An Epidemic of Dysenteric Diarrhea.—THOMAS ORR reports an interesting epidemic of dysenteric diarrhea (*Lancet*, Nov. 11, 1905). The features of the outbreak were: (1) Its occurrence during very cold weather; (2) its attacking all ages; and (3) the fact of the cause having been milk-borne. In most cases there was a sudden onset, beginning with chilliness and nausea, followed by diarrhea. Fever was present in most cases, varying from 100° to 140° F. It was highest on the first day and then gradually fell to normal. The pulse was full and quick and varied with the temperature. The tongue was thickly coated with white moist fur, with clean tip and edges. Flushing of the face, with pallor around the mouth was present in most cases. A few complained of slight headache. The diarrhea was of a dysenteric type, the stools consisting of bloody mucus, often of pure blood, and in one case two large black sloughs were passed. The number of stools passed in a day ranged from 8 to 40, and each passage was accompanied by great pain and tenesmus, and was followed by pain at the anus and lower part of the abdomen. There was tenderness along the caecum, colon and sigmoid flexure. The duration of the attack was usually about eight days. All the patients recovered. Investigation proved the causative factor to be milk supplied by one dairy farm. An examination of the suspected farm revealed the fact that the cans were cleaned with water, the source of which was the cattle trough. To ascertain the essential cause of the outbreak the stools from several of the patients and a sample of the water from the trough were examined bacteriologically. Films made from the stools showed a great number of organisms, the microscopic field being crowded by short bacilli with occasional chains of streptococci. These bacilli were conclusively proven to be colon bacilli. It was found that these bacilli were agglutinated in from eight to twenty minutes by the blood in a dilution of 1 in 40. From their abundance in the stools and the agglutination tests it is concluded that the *Bacillus coli* was the cause of the epidemic. The specimen of trough water did not reveal similar organisms, which was due no doubt to the fact that the trough had been thoroughly cleaned before the sample was taken. The chief interest of this epidemic centers in the fact that, given certain sufficient predisposing causes, a virulent strain of bacillus coli may become an agent affecting seriously the health of a community.

Epistaxis and Diphtheria.—After a series of observations of cases of diphtheria, E. VIEILLARD (*Jour. de med. et de chir. pratiques*, Dec. 10, 1903; *Archives of Pediatrics*, October, 1905) points out the importance of coryza and epistaxis. The author states that epistaxis in diphtheria does not always depend upon the separation of false membranes. It appears sometimes at the beginning of, and sometimes before, the appearance of the coryza, and thus belongs to the prodromal period. Appearing thus early it is a grave symptom, even should the amount be small. The writer refers to a case of nasal diphtheria, quoted by Sanne, which ended fatally at an early date. The earlier the appearance of the epistaxis the worse the prognosis, and in cases of intensely malignant angina epistaxis is an initial symptom. Thus in 25 cases of epistaxis occurring before coryza death occurred in 20 (80 per cent.). In a series of 6 cases of early epistaxis collected by Geyot, 5 terminated fatally. Such hemorrhages, he says, are of considerable importance from the point of view of prognosis, as they are an indication of the severity of the infection. It is in these cases that sudden death from cardiac toxæmia occurs. Biellard states that occasionally the discharge from the nose may be an oozing the color of licorice juice. He regards all cases in which such discharges occur as particularly malignant.

What is the Present Conception of Bright's Disease?—G. W. McCASKEY (*St. Louis Med. Rev.*, Nov. 11, 1905) states that in reviewing recent literature on Bright's disease it is found among a considerable number of American, English and German textbooks consulted, that the renal lesion is the one essential thing in the conception of the disease, and that there is no recognition of Bright's disease as different from nephritis, or any attempt to treat diffuse non-suppurative nephritis as separate from Bright's disease. For the purpose of a broad general view of the subject the etiology of Bright's disease is divided into six classes as follows: (1) The acute infections; (2) chronic infections; (3) chemical poisons, introduced into the circulation, of which lead may be taken as a type; (4) the influence of cold; (5) the products of perverted gastrointestinal function, and especially intestinal putrefaction; (6) the products of perverted or excessive metabolism. The author concludes as follows: Bright's disease is a generic term applied to a large group of both acute and chronic cases, described in part by Richard Bright, in 1827, and characterized clinically by arterial hypertension, albuminuria, dropsy, or all three, and frequently complicated by serious inflammations, retinal, cerebral and other hemorrhages, comas and convulsions; and anatomically by more or less diffuse inflammatory or degenerative processes involving structural changes in the cardiovascular apparatus. No one of these factors is constant, excepting the renal lesion, without which Bright's disease does not exist. They are preceded by acute or chronic toxic conditions, due to a variety of causes, producing, especially in the chronic cases, certain antecedents, of which arterial hypertension and arteriosclerosis are the most important and constant, but which should not be termed Bright's disease until renal involvement occurs. Some considerable differences of opinion exist as to the proper limitations of the term, but the general consensus of opinion seems to be that, as the term at best is inexact and admittedly generic in character, it should include the group of cases

originally described by Bright, and be limited to cases in which there is a diffuse inflammatory or degenerative renal lesion.

Typhoid Fever with Triple Intussusceptions.—BERTRAM L. BRYANT and JESSE S. BRAGG (*Med. Rec.* Nov. 18, 1905) report this case. The patient was a man of twenty-three years, who, thirty-eight days after the first symptoms of his typhoid infection, which, up to then had run an uneventful course, was suddenly seized with pain in the right iliac region, rise of temperature and symptoms of shock. A perforation was suspected and the abdomen opened. It was found filled with clear serum, and on drawing out the small intestine a short distance from the ileocecal juncture an intussusception was found about eight inches long, invaginated both ways. A short distance further on a second was found about five inches in length, also invaginated both ways; and drawing out more gut there was a third intussusception about three inches long, invaginated from the right. Beyond this the gut appeared normal in color, excepting the infiltrated patches and lymph nodes due to the typhoid infection. Reduction of the invaginations was easily accomplished, but the patient died in shock five hours later.

Clinical Experiences with Certain Drugs in Heart Disease. THOMAS E. SATTERTHWAITTE (*Am. Med.*, Nov. 18, 1905) calls attention to the facts that in the year 1900, according to the last census, as many as 70,000 persons died of heart diseases in this country. Also that of the nine principal causes of death, heart disease was third on the list, in point of frequency, tuberculosis holding the first place and pneumonia the second. And now that apparently successful efforts have been directed against tuberculosis, and pneumonia has been investigated by a commission, heart disease should logically be next attacked. In so far as drugs were concerned he regards supra-renal gland as the most powerful heart stimulant known. As to the dangers from the nitrites and nitrates, about which much has been written, he finds their effects are always evanescent. Ordinarily in angina, hypertension and in arteriosclerosis they are useful, but if they produce violent pulsation in an arteriosclerotic they should be suspended. For advanced cases of this affection the tetranitrate of erythrol was specially adapted, owing to its prolonged action. But after all iodine in some form or other should be the main reliance. Strychnin is a reliable heart stimulant, but should be used with discretion and in moderate doses. Larger doses produce nervousness and insomnia. It should never be continued more than a couple of weeks at a time. Cactus he finds a good heart regulator, and strophanthus is excellent if prompt action is needed. Digitalis acts best when the arteries are flaccid, and just enough is given to restore normal tension. If the drug produces too much tension the work of the heart is unnecessarily increased. In acute endocarditis the fat heart, fatty degeneration, advanced arteriosclerosis, aortic diseases and in cardiac neuroses, digitalis may do serious harm. In deficient or failing compensation digitalis is useful up to the point of producing normal arterial tension, after which its action is harmful, except in so far as it may increase diuresis. Circulatory depressants such as antimony, veratrum, pulsatilla and hellebore are out of date in the treatment of cardiac neuroses. There are some drugs in particular the action of which requires further investigation, because we are

not sufficiently acquainted with their active principles or modes of action. These are adonis ver-nalis, trythroleum, epocynin and creteagus.

SURGERY.

The Management of Critical Cases of Intestinal Obstruction.—Enterectomy with immediate suture for the relief of intestinal obstruction is attended with a high mortality. JOHN W. ELLIOTT (*Ann. of Surg.*, November, 1905) contends that enterectomy with a temporary artificial anus should be the operation of choice in all critical cases where there is an opportunity for resection, whether it involves the large or small intestine. Enterostomy with later enterectomy is to be reserved for the cases unable to bear primary enterectomy. The improvements in technic suggested are: The upper distended bowel should not be opened until the peritoneal cavity is completely closed. The open ends of the bowel should be stitched together on their mesenteric side before being fastened into the parietal wound. This greatly facilitates the later closing of the artificial anus. When the artificial anus is in the small intestine, the partially digested discharge from the upper opening should be collected and injected into the efferent opening. The subsequent closing of the artificial anus is a safe operation and hardly disturbs the convalescence. Too few cases have been operated by this method to estimate its relative mortality, but it is to be inferred, from cases reported, that better results are obtained than by enterectomy with immediate suture.

Gastro-enterostomy.—WILLIAM J. MAYO reviews 500 cases of gastro-enterostomy (*Ann. of Surg.*, November, 1905), including pyloroplasty, gastroduodenostomy and gastrojejunostomy. In computing the mortality every case dying in the hospital without regard to cause of death or length of time after operation is included. The statistics are as follows: Pyloroplasty, 21 cases; no deaths; seven secondary operations. Gastroduodenostomy, 58 cases; mortality 6.9 per cent.; two secondary operations. Gastrojejunostomy, 421 cases. Benign, 307 cases; mortality 6.5 per cent. In the last 140 cases the mortality was 26/7 per cent.; last 80, 1.25 per cent. Malignant, 114 cases. Of these, 63 were in connection with pyloroplasty and partial gastrectomy; mortality, 13 per cent. In the last 40 gastrojejunostomies for malignant disease the mortality was 8 per cent. In the total list of 421 cases, 21 were reoperated. Pyloroplasty is stated as having a small field of usefulness. The incision should be curved downward upon both the stomach and duodenum, according to the later plan of Mickulicz, the result being to give an increased calibre and better drainage lines than pyloroplasty as ordinarily performed. Finney's method was employed in the 58 gastroduodenostomies. Extensive disease, adhesions, a short gastrohepatic omentum, and especially the presence of scar tissue, should be considered contraindications to this operation, as it is in just these cases that gastrojejunostomy gives the most satisfactory results. In open ulcer this procedure should not be expected to be curative, since the food must still pass the ulcer area. Of the total number of gastrojejunostomies, 126 were anterior and 295 posterior. The mortality in the anterior group was over 1 per cent. higher than in the posterior, but the percentage of secondary operations was greater after the posterior operation. For benign disease, the posterior operation is the one of choice. It is

unattended with the risk necessitated by a loop surrounding the transverse colon. The anterior operation is indicated in cancer since the disturbance is less and since gastric hypoaclidity exists jejunal ulcer is not to be expected before death. Contraction is more liable to occur, but a vicious circle is less likely to be instituted than in the posterior operation. The Murphy button was used in 157 operations. Benign, 72 operations, 6 deaths; 54 anterior, 4 deaths, 4 reoperations; 18 posterior, 2 deaths, 4 reoperations. Malignant, 85 operations, 15 deaths. This method is least liable to be followed by passage of bile into the stomach. It mechanically prevents kinking, and the character of the opening does not favor angulation. The opposed surfaces may pull apart and so cause death. The button union should be protected by mattress sutures of silk at intervals. A continuous suture outside the button may prevent its passing on. Occasionally a retained button has to be removed. After pyloroplasty and partial gastrectomy for cancer, the button is nearly always used. McGraw's ligature was used in 36 operations. Benign, 17 cases, 2 deaths. Malignant, 19 cases, 3 deaths. This method used anteriorly is very free from bile regurgitation and is exceedingly safe. The tissues require some vitality for the elastic cord to cut through. The posterior suture method was used in 228 cases; 10 malignant, with 2 deaths; 218 benign, with 11 deaths. The anterior suture operation is not recognized. After an extended trial of the methods of Robson, Mickulicz, Moynihan and Roux, the operation of choice was decided to be the posterior suture method without a loop. This procedure regards more closely the anatomy and physiology of the parts than any other. The gastric opening should be placed on the posterior wall, obliquely from above downward, and left to right. The lowest point of the gastrojejunostomy should be at the lowest point of the stomach, on a plane perpendicular with the cardiac orifice. To insure this effect the gastric incision should extend $\frac{1}{4}$ to $\frac{1}{2}$ in. onto the anterior wall. The incision in the intestine should be longitudinal, opposite the mesentery, and begin from one to three inches from the origin of the jejunum, measuring on the anterior surface. The points to be opposed are caught up with clamps and sutured for 2½ inches by a Cushing suture of linen thread. Both stomach and intestine are incised $\frac{1}{8}$ inch in front of the suture line and the cut surfaces brought together by a through and through suture of chromic catgut No. 1. The Cushing suture is then continued around until tied to the original end. The margins of the incised mesocolon are now united to the suture line, and the parts returned into the abdomen.

Liver Surgery.—One of the main obstacles to the advance of liver surgery has been the difficulty in controlling hemorrhage. W. J. GILLETTE, (*Am. Jour. Obstet.*, November, 1905) has reviewed various means for its accomplishment as described by many able surgeons. The tampon, magnesium plates, bands of tissue from the abdominal wall to support sutures, catgut and elastic sutures inserted in many ways all have been used with varying degrees of success. As a means of overcoming ligature-cutting in suturing the liver for the control of hemorrhages, the writer suggests the use of a piece of a rubber tube, drawn over a linen catheter No. 10, and placed along the proposed line of suture. The sutures are passed around this and through the abdominal wall, making exit between the ribs after the manner

of a staple. *Liver abscess* is of interest in connection with our island possessions. Seventy to eighty per cent. of all abscesses are in the right lobe. The conditions may be treated after three methods: Immediate drainage; exposing the liver and allowing it to become adherent to the abdominal wall, opening twenty-four hours later, and by using the trocar and canula with syphon drainage. The second method has given best results in the hands of the writer. The anterior transperitoneal route is usually the best method of reaching the abscess. Among the tumors of the liver which are often operable are carcinoma, angioma syphiloma, cavernoma, endothelioma, angiofibroma adenocystoma, echinococcus and hydatid cysts. After resection, the stump of the liver may be dropped into the peritoneal cavity or fastened into the abdominal wound. The diagnosis of liver *gummata* depends on the history, enlarged spleen and a relative increase of lymphocytes and eosinophiles. Operation in these cases is advised against. Of *liver cysts*, the echinococcus is of most interest. The right lobe is usually affected, the outline being changed only when the cyst is near the periphery. The treatment is radical excision. The edges of the sac should be sewn to the peritoneal wall before the cyst is incised. If the discharge of bile persists, packing the external fistula may reestablish internal drainage, failure meaning some obstruction in the lower biliary tract, demanding a second operation. *Hepatoptosis* may be caused by tight lacing, weak ligaments, low intra-abdominal tension or injury. The condition is usually accompanied with colic in the right hypochondrium, a feeling of weight in the liver region, intestinal indigestion and nervous symptoms. Many are benefited by an abdominal bandage. Operation offers a radical cure where there is no general enteroptosis. The liver may be fixed to the anterior abdominal wall by several rows of silk sutures. A second method is, after denuding the upper surface of the liver and the anterior abdominal wall of peritoneum, to approximate the two surfaces and stitch the coronary ligament into the upper angle of the wound. A third method turns up the edge of peritoneum, cut through a six-inch incision, parallel to and an inch below the free border of the ribs, under the edge of the liver and sutures, the liver between the parietal peritoneum and its reflected edge. *Hepatotomy* is occasionally necessary on account of some obstruction in the ducts. An incision into the right lobe of the liver with gauze drainage may relieve the toxic symptoms of cholemia and enable the patient to recover sufficiently to undergo a more radical operation. The surgical treatment of cirrhosis of the liver is a modern achievement. The operation consists in uniting the omentum to the parietal peritoneum well up over the liver. The omentum and liver should be sacrificed and then united with interrupted silk sutures.

The Direct Fixation of Fractures.—JOHN B. ROBERTS (*N. Y. Med. Jour.* and *Phila. Med. Jour.*, Nov. 18, 1905) states that the direct fixation of the fragments sometimes becomes necessary after reduction of a fracture has been obtained, because of unusual tendency to displacement. This liability of the pieces of bone to slip out of proper position is generally due to muscular contraction, which may be difficult to control. In most instances relaxation of the muscles, by posture, and indirect fixation with splints and other appliances adjusted to the exterior of the limb are sufficient to insure immobility. It occasionally happens, however, that these ordinary

methods are not sufficient, because of unusual muscular spasm, great obliquity of the line of fracture, or excessive restlessness on the part of the patient. It then may become necessary to apply the retentive appliances directly to the broken bone itself. A very small proportion of fractures require direct fixation; but there are a few cases in every large series in which the medical attendant will find that good results can scarcely be obtained unless some retaining device is applied directly to the broken bone itself. The freedom of properly conducted aseptic operations from notable risk to the patient makes incision through the soft parts justifiable in these cases. The author recommends fixation by means of nails applied transcutaneously if the fragments are in good position, or by means of staples and plates applied directly to the fragments after complete exposure. The author claims that the advantage of direct fixation, in the few cases in which it is needed, is complete immobility. This prevents displacement from accident or muscular contraction, and averts the pain due to motion from the muscular spasm. The assured immobility lessens the need for frequent inspection and permits less cumbersome dressings to be used as splints. Massage and friction of the skin, so useful in keeping up muscular tone and cutaneous health, may be employed more freely, if the fragments are known to be firmly supported by nails or staples. The simplicity and efficiency of nails and staples make them probably better than other agencies for direct fixation. They may be used in fractures and dislocations of the clavicle and fractures of the jaw, metacarpus, olecranon, calcaneum and patella, as well as in the long bones of the arm, thigh and leg. They are useful in cases of ununited fractures after resection of the ends of the bone. They should not be used unless the operator is thoroughly and practically familiar with modern aseptic surgery.

OBSTETRICS AND GYNECOLOGY.

Antepartum Measurement of the Fetal Head.—WILLIAM S. STONE interestingly describes (*Med. Rec.*, Nov. 4, 1905) a new method of measuring antepartum the occipito-frontal diameter of the fetal head. An ordinary pelvimeter is used, and no deduction is made for the thickness of the abdominal wall. The patient is placed in the dorsal position, and the examiner, standing by the side and facing the lower end of the patient's body, first carefully palpates and makes out the position of the head. If it is already engaged in the pelvis it will not be practicable to measure it, but in such cases it is naturally unnecessary. The occipital and frontal poles are then grasped between the two hands, and an assistant places from below the ends of the pelvimeter between the terminal phalanges of the middle and ring fingers of the examiner, pushing them firmly inwards as the examiner directs. It is essential that the ends of the pelvimeter go between these fingers, because in palpation one naturally places the middle or longest finger nearest the two poles from which the measurements are to be taken. If placed in front of the middle finger the pelvimeter will slide forward and the measurement will be inaccurate. An assistant or nurse is necessary to obtain the best results, in order that the examiner's fingers may be entirely free to accurately locate the fetal parts. In 41 cases thus measured, the post-partum measurement agreed exactly in 28 instances; in 11 there was an error of 0.25 cm.; in 2 of 0.50 cm. In order to decide upon some average amount to deduct from the occipito-

frontal diameter in estimating the biparietal, the skulls of one hundred new-born children were specially measured. The average difference for the entire series was found to be 2.33 cm., but it varied fairly constantly with the size of the head, the smaller heads showing generally less of a difference than the larger. If 2 cm. is deducted from the heads with an occipitofrontal diameter of less than 11 cm. and 2.50 cm. for those above this measurement, fairly accurate results will be obtained and sufficient amount will be allowed for the molding. As such, the antepartum measurement of the fetal head affords a more precise method of estimating the course of labor in contracted pelvis than any other now available, and is of the greatest value in the selection of cases suitable for premature induction, and in the determination of the best time for performing it.

Etiology of Floating Kidney.—The etiology of nephroptosis has been the subject of much thought and speculation. The facts that 85 per cent. of all cases occur in women, that fifteen kidneys of the right side become movable to one of the left, and that the left is almost never singly displaced, have never been satisfactorily explained. H. W. LONGYEAR (*Am. Jour. Obstet.*, November, 1905) has reviewed the literature on the subject and reported a number of ingenious and interesting opinions. After investigating a number of cases, both at operation and in dissections on the cadaver, the writer describes a cord-like band passing downward from the lower pole of the kidney and separating this organ from the bowel. This structure was found to be formed by the gathering together of the longitudinal fibers of the fibrous network which forms the framework of the fatty capsule. This band is attached to the posterior surface of the ascending colon between the peritoneal reflections, extending down to the junction of the ileum. This ligamentous continuation from the fatty capsule is probably the tissue left in the track of the ovary, or testicle, in its descent from its place of origin in the Wolffian body, high up near the kidney. The writer claims that this nephrocolic attachment is the most important factor in the etiology of nephroptosis. The full cecum in its efforts to push its contents upward, makes traction downward on the kidney by means of this attachment. The fact that the cecum makes counter-extension with its fixed point above, while the descending colon makes counter-extension with its fixed point below, is offered to explain the greater relative frequency of the displacement of the right kidney over the left. "Digestive" and "nervous" symptoms probably owe their activity to the fact that the fatty capsule is adherent to the descending portion of the duodenum, and thus traction on the kidney may cause a kinking of the gut. A properly applied abdominal band relieves symptoms attributed to floating kidney because it raises the cecum and prevents traction on the renal vessels and duodenum. A kidney stripped of its fatty capsule and fixed to the muscular parietes often fails to relieve symptoms because the continuity of attachment between the duodenum and cecum still remains. The ideal operation must attack both kidney and bowel. To sever the nephrocolic attachment is attended with great danger of wounding the bowel. The method advised by the writer is to fix this nephrocolic ligament into the upper angle of the usual lumbar incision, without severing it from the colon, and fastening any redundant mesentery into the lower angle of the wound. A kidney thus fixed has the additional advantage of not being held in an immovable position.

Toxemia of Pregnancy and the Thyroid.—H. D. BISHOP (*Cleveland Med. and Surg. Rep.*, November,

1905) presents a paper in which he draws attention to several types of cases in which treatment was directed upon the assumption that the symptoms which were manifest were due to a toxemia incident to pregnancy. The principles of treatment were based upon the ideas regarding the etiology of the toxemia. The author summarizes these principles as follows: (1) The toxemia of pregnancy is due to an auto-intoxication resulting from imperfect metabolism. (2) This imperfect metabolism is due primarily to a failure of the organism to properly transform the waste products of the mother and fetus, by the normal process of oxidation. (3) This failure of the oxidizing powers of the organism is a result of imperfect functional activity of the thyroid, and that the rational treatment of such disturbances in metabolism is to supply the active principles of the thyroid secretion. Until recently it has never been assumed that the toxemia of pregnancy was an etiologic factor in any of the gestatory morbidities, other than eclampsia, and unless there have been marked symptoms of a toxemia, such as nephritis, the condition has not commanded the serious attention of the obstetrician. There are, however, an increasing number of investigators who believe that all of the major and minor disturbances of gestation, other than maladies of genital origin, and the predisposition to sepsis in the puerperium are directly due to the basic condition of gestatory toxemia. The various affections of pregnancy, such as nausea, salivation, hyperemesis, pernicious vomiting, neuritis, cardiac and vascular disturbances (not due to pressure), psychoses, acute yellow atrophy of the liver, etc., as well as antepartum and post-partum eclampsia, are identical in their etiology according to this theory. The final decision as to whether this assumption is correct must rest largely upon the clinical results of treatment based upon it. Most of these conditions do not lead to a fatal result, but in such as do the pathological findings have invariably shown that the chief lesions are in those organs whose functions are the transformation or elimination of the waste products of metabolism. Whether the changes in these organs are primary and the direct cause of the auto-intoxication or secondary and the result of it is a matter of dispute. My opinion is that the diseased condition of these organs is secondary and is caused directly by the imperfectly oxidized waste products of the maternal and fetal metabolism. If this is correct, the treatment of all the conditions assumed to be the result of toxemia is to increase the oxidizing powers of the organism. This is the first and most important element in the treatment, and the increasing of the eliminative powers of the organism and the removal of the cause of the increased metabolism are of secondary importance in the order named.

Surgery of the Ureter.—In cases which demand extensive resection of the ureter, R. FREUND (*Centralbl. für Gynäkol.*, No. 27, 1905) has recommended that the proximal end of the duct should be sutured into the abdominal end of the Fallopian tube; the latter should then be separated from the uterus and implanted at once into the bladder. The blood supply of the tube is not disturbed, as the tubal connection with the mesosalpinx is not severed. The operation is not practicable in cases of abdominal hysterectomy for cancer, since such a condition would indicate the removal of the mesosalpinx. This plan of dealing with the ureter may be practicable in cases of intra-ligamentary fibroids, cystomata or hydratids, which will permit of enucleation without impairing the blood supply of the tube. When the tube cannot be used one ureter may be implanted into the other as recommended by others.

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No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, Including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES	.10
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LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, DECEMBER 30, 1905.

THE CONSOLIDATION OF THE MEDICAL NEWS AND THE NEW YORK MEDICAL JOURNAL.

FIVE years ago the writer took up the responsibilities and opportunities offered as editor of the MEDICAL NEWS with a single ambition clearly defined in his own mind, the determination to do all in his power to further the ideals of medical science in its efforts to conquer disease and to relieve human suffering.

To this end it has been the desire of the editor of the MEDICAL NEWS to place before its readers from week to week the most helpful and progressive work that could be obtained from his fellow practitioners, and from students of the practical problems of medicine throughout the world.

It has been a keen pleasure during these years to meet in personal contact and through written converse the cooperation and sympathy of so many members of the medical fraternity, and there is satisfaction in being able to say that through this support and friendly cheer the editor has seen the MEDICAL NEWS grow in importance as a medium for the promulgation of medical truths and ideals.

A medical journal offers special problems not met in many other apparently similar enterprises. Its contributors, as may be readily surmised, are

not primarily literary men who are ambitious to achieve distinction and wealth as authors. They are first and foremost workers, investigators, scientists, and their literary work is done under great pressure, and often only at the urgent request of the editor, who feels that he knows the interest that their experience will have for its readers. Therefore every contribution that comes from the office or laboratory or hospital clinic of a busy man is appreciated as a courtesy, and at this time it seems not inappropriate to recognize the personal obligation of the editor to his friends, and to state that any true measure of worth which the MEDICAL NEWS may have shown has been possible only through the help of its contributors. That among these may be numbered the foremost men in medicine in this country is a subject for congratulation.

From this time forward the MEDICAL NEWS and its present editor with it enter into new relations. The MEDICAL NEWS is to become on the first of January, 1906, an integral part of the *New York and Philadelphia Medical Journal*.

With this merger newer opportunities are offered, for with a greatly enlarged journal and with a vast increase in the number of readers, wider and fuller interests may be discussed. It will be possible to conduct a journal which will represent the profession of the country in its best endeavors.

This can only be true if the support that has been so cordially rendered in the past be continued throughout the years to come. With such cooperation the combined journals should be able to bring about that ideal of the medical profession which Dr. Osler has so ably expressed in the following words:

"It is not the prevalence of disease or the existence everywhere of special groups of men to treat it that betokens this solidarity (of the medical profession), but it is the identity throughout the civilized world of our ambitions, our methods and our work. To wrest from nature the secrets which have perplexed philosophers in all ages, to track to their sources the causes of disease, to correlate the vast stores of knowledge, that they may be quickly available for the prevention and cure of disease—these are our ambitions. To carefully observe the phenomena of life in all its phases, normal and perverted, to make perfect that most difficult of all arts, the art of observation, to call to aid the science of experimentation, to cultivate the reasoning faculty, so as to be able to know the

true from the false—these are our methods. To prevent disease, to relieve suffering, and to heal the sick—this is our work. The profession in truth is a sort of guild or brotherhood, any member of which can take up his calling in any part of the world and find brethren whose language and methods and whose aims and ways are identical with his own."

THE HYGIENIC ASPECTS OF PUBLIC LIBRARIES.

THE important place which the free public library occupies in the educational system of to-day, and the extent to which it has stimulated the habit of reading among all classes of the people, have given birth to new problems of vast hygienic significance. The question of the transmissibility of disease through the agency of books has already been settled and is adequately recognized in the new Carnegie libraries by the installation of efficient formalin sterilizers for the disinfection of books coming from infected households. The libraries receive from the Department of Health daily notification of all new cases of infectious disease reported, and comparison is immediately made with the lists of those borrowing books at the library. If it be found that the home of one of the readers is under quarantine, the latter is notified to retain his book or books until the premises are disinfected. Upon being returned to the library, the books are thoroughly sterilized.

In spite of the many possibilities which are offered by the book as a carrier of contagion, surprisingly few actual cases of disease have been traced to this source. Outside of smallpox, the only disease which it has been demonstrated can be thus transmitted is scarlet fever. Yet, it is quite probable that in tracing the origin of a specific case of infectious disease, the book has been overlooked. Handled for hours by hands of questionable cleanliness, coughed and sneezed upon and besprinkled with saliva, the books of circulating and even of reference libraries have undoubtedly been potent factors in the dissemination of communicable disease. The lack of available data showing the relative frequency of this form of transmission is no criterion upon which to characterize the circulating volume as practically harmless. It is a matter that requires the serious consideration of librarians and health officers, whether the proper disinfection of all books handed in by readers

might not be desirable or even necessary. The attitude of the public library at Mount Vernon, N. Y., in this connection, is to be highly commended. Two hundred books daily are placed in the formalin sterilizer, and this number constitutes the large majority of the books that are returned by readers.

It may be suggested that the card-index catalogue of the large reference libraries is in more urgent need of frequent disinfection than the books themselves. In fact, such is the lack of cleanliness in a large class of its readers that the German section of the index catalogue of Cooper Union library is annually replaced by fresh cards. There is a certain class of readers frequently visiting the reference libraries who may become prolific sources of infection. These are victims of venereal disease in search of technical information about their malady. In view of the well-recognized frequency of the hand as a medium of the transmission of venereal contagion, a periodical disinfection of the index-cards is a subject that should strongly appeal to the vigilant librarian.

The function of the public library is to cultivate a proper taste for reading and to supply the books legitimately demanded by the public. This is a labor that requires all the well-directed energies of the library officials, and any additional burden would apparently detract from the fundamental purpose of the vast library system. Yet, there is one subject which is so intimately bound up with the universal demand for books fostered by the free library, that the latter cannot escape at least a slight consideration of its enormous importance. This is the subject of the proper care of the eyes on the part of readers, and it is certainly pertinent to inquire to what extent the public library may become a powerful factor in educating the people in the elementary hygiene of the eye.

It may be asserted that this is the duty of the public school and not of the library. The more intimate association of teacher and scholar affords a better opportunity of instructing the latter in the proper methods of holding the book, adjusting the light, etc., and of discovering those errors of refraction which would require the intervention of the oculist. To be sure, this is the ideal to be strived for. The schools, however, are remarkably lax in this particular, probably owing to the scant knowledge of the subject possessed by the average teacher. There is

certainly a great need of specially trained instructors of hygiene in the public schools. A competent physician connected with each school, having the duties of special lecturer on hygiene and of health inspector, would be a valuable adjunct to the modern educational system. At present the cursory examination by the inspectors of the Department of Health is inadequate to discover errors of refraction in the eyes of school children. That these are exceedingly common is the experience of every physician, and has been demonstrated by the routine examination of the eyes of all the children in two or three schools selected at random by the Health Department. It is to be hoped that an increased appropriation will enable the latter to extend this work to all the other schools of the city.

In what respects may the public library become an efficient adjunct in the instruction of its readers in the care of the eye and the discovery of errors of refraction? There are a number of points that readily suggest themselves. Each book may contain, either loose or pasted inside of one of the covers, a small slip containing printed directions for the care of the eyes. This will, of course, seem like an unnecessary intrusion to many readers, but to the large majority, particularly to those who have not had the so-called up-to-date training of the public schools, such directions cannot fail to do a vast amount of good. As part of the equipment of public reading-rooms, particularly those for children established in the new libraries, a series of wall charts illustrating correct and incorrect postures in reading, would prove eminently useful. It is to be assumed that the library attendants will exercise an intelligent control of the proper placing of chairs and tables with respect to the light, and in the case of children, will note and correct any of the various vicious habits in reading. Here lies the enviable opportunity of the librarian, from whom a quiet hint or warning may prove a matchless boon to the reader.

Indeed, the library assistant may extend her influence still further. Assuming that her technical training has adequately recognized the need of such knowledge, she has excellent opportunities of noting some of the larger physical manifestations of eye-strain. In such cases, especially in children, the privilege of borrowing books may be withdrawn until satisfactory evidence is produced that the eyes have been attended to. The fact cannot be ignored that the public

library, by facilitating the access to books and encouraging the habit of reading in young people, should feel an element of responsibility in the production of the baneful results that may follow the excessive use of imperfect eyes. At any rate, the best results from the application to books can be expected only from those whose eyes are naturally good or else have been made so by the adjustment of glasses. From this point of view, one is justified in enlisting the aid of the public library in arousing in the large class of readers a realization of the need of properly conserving the strength of the eyes. This is all the more desirable in view of the influential position which the library holds in the modern educational system.

ECHOES AND NEWS.

NEW YORK.

Special Clinics For Working Girls.—Special clinics for women are being held four nights a week at the Polyclinic Medical School and Hospital this year. These clinics were instituted for the benefit of working girls primarily, by whom they are largely attended, and for that reason are held in the evening after the stores and offices are closed. All the physicians in charge are women.

Organizations of Instructors.—A meeting of the instructors in the medical departments of Johns Hopkins, Harvard, University of Pennsylvania, and Cornell, was held at the Cornell Medical College in East Twenty-eighth Street recently to discuss the teaching methods of the Eastern colleges, and to note any advances which the New York members could present. A similar organization is the Current Literature Club, of the Cornell instructors, who hope to enable specialists to bring to the attention of the men who are teaching and practising the important contents of the many technical journals which are not seen by the general practitioners.

West End Medical Society.—The annual meeting of the West End Medical Society was held December 16, at the residence of Dr. Kerley. Dr. W. A. White, Superintendent of the Government Hospital for Insane, Washington, D. C., gave a talk on the work done at this institution, outlining its scope and giving a short history of its development and of his efforts to make it as distinctly medical as possible. Dr. Cecil Maclevey, of Brooklyn, showed a number of vitoscope pictures, demonstrating the use of the vitoscope in the study of neurological and surgical conditions. The papers were discussed by Dr. Sherman Wight, Dr. Leroy Brown and Dr. Smith Ely Jelliffe. Dr. Walter Mendelson was elected president for the new year.

PHILADELPHIA.

Ambulances to be Present at All Fires.—Director Coplin has communicated with all the larger hospitals of the city with the view of ascertaining whether or not arrangements can be made to have an ambulance present at every fire. The scheme has impressed the authorities of all the hospitals consulted favorably, and now the city will be divided

into districts, each hospital being made responsible for the calls of a certain district. Under the present system ambulances were called out only after several alarms had been given.

Blockley to be Rid of Criminals.—Close investigation has revealed the fact that there are present in the Almshouse many individuals who are responsible for petty crimes. Robert McKenty, superintendent of the House of Correction, and a former city detective, paid the Almshouse a visit recently; he recognized among the inmates many who are criminals. The statistics of the institution show that these criminals do not remain any great length of time; on leaving they always receive new clothes. Director Coplin said "all those inmates found to be criminal will be removed from the institution." He holds the police are entirely too lax in their methods, and if discretion had been exercised many alcoholics and criminals would have been taken to the House of Correction instead of to Blockley. An attempt will also be made to oust the politicians on the petty payroll, and who pretend to be plumbers, carpenters and tinsmiths.

Clinic by Boston Surgeon.—Dr. Robert W. Lovett, of Boston, assistant professor of orthopedic surgery at Harvard University, held a clinic at the Jefferson Medical College Hospital the early part of last week on "Curvature of the Spine." He took the ground that many of these cases can be cured by proper gymnastics. He holds that 33 per cent. of the children attending school are afflicted with this malady. And braces tend to weaken the muscles of a child so afflicted rather than cure the malady. The doctor takes the ground that the clothing should be suspended either from the neck or from the hips, instead of from the shoulders. The first step to remedy the condition is to obtain mobility and improve the carriage of the patient; the next step is to retain the mobility. This, he concludes, can be obtained through the use of gymnastic machines. The exercises should be carried out for from four to five hours daily and throughout a period of two years.

Pharmacopœia Condemned.—In a paper entitled "The Eighth Decennial U. S. Pharmacopœia," and read at the Philadelphia College of Pharmacy, Dr. Henry Leffman maintained that the work should have been issued in 1900, that the delay of five years gives it lack of comprehensiveness, and that it contains too many Latin and obsolete formulas for modern pharmacists and druggists. He holds the present issue largely represents drug manufacturing interests and is unworthy of posing as an official standard. The chemical nomenclature, he maintains, is very confusing, and only a few physicians were taken into confidence in revising the book; consequently many physicians and pharmacists were greatly surprised when they saw its contents. The prescribing of "average doses," which is a new feature of the book, is also criticized, as it may lead to overdosing. Since the next issue will not be out until 1917, pharmacists and druggists will be in a dilemma when they seek official standards. There are 140,000 druggists in the United States, and only 10,000 copies of the new pharmacopœia have been sold.

CHICAGO.

Isolation Hospital.—The wards of the Chicago Isolation Hospital have been empty for more than a month, and there is not a single suspect case of smallpox under observation in the city.

Reappointment of Drs. Podstata and Davis.—Dr. H. I. Davis has been reappointed county physician, and Dr. V. H. Podstata has been reappointed superintendent of the Cook County institutions.

To Stamp Out Tuberculosis in Public Schools.—The school management committee of the Board of Education recently took a hand in the fight to stamp out tuberculosis in Chicago and prevent its spread in the public school rooms by adopting, without a dissenting vote, a resolution calling for the appointment of a committee to draft a rule providing for the exclusion from the public schools of all victims of tuberculosis. The committee was also empowered to present a plan for the medical examination of all suspicious pupils, with a view to determining whether or not they should be denied seats in the school room.

Mortality for the Week.—According to the weekly bulletin of the Department of Health, during the week ended December, 16,489 deaths occurred equivalent to an annual death rate of 12.80 per 1,000, which is nearly 12 per cent. less than the rate of the previous week and the rate of the corresponding week last year, 15 per cent. less than the average December rate of the last decade, and 1 per cent. less than the lowest previous recorded rate. Of the deaths, 81 were due to pneumonia, 60 to consumption, 35 to nephritis, 33 to violence (including suicide), 32 to cancer, and 30 to heart disease. One death was caused by scarlet fever, 11 by diphtheria, and 4 by typhoid fever.

Race Suicide.—This subject was recently discussed at the December meeting of the Physicians' Club. Dr. Harold N. Moyer said: "Blessed be race suicide. Where would we be without it? At the beginning of the last century this country had 4,000,000 people; at the beginning of this century we had 80,000,000. In another one hundred years we shall be jammed together, 360,000,000 souls—all struggling for a livelihood, and without enough millionaires to furnish appendices for one physician in 50,000. Think of the fearful congestion! And then recall that this must be met by the silent forces of nature that some have labeled "race suicide—merely the natural check upon population. All the talking in the world cannot affect it, and we ought to be glad it can't." "The real race suicide," said Superintendent W. Lester Bodine, of the Compulsory Education Department, "is in improvident childhood among the illiterates and poor, in the raising of children as commodities for the factory, and in the insanitary and depleting conditions that often surround women who work."

The Radical Removal of Cancer of the Stomach.—Dr. William J. Mayo and Dr. Chas. H. Mayo, of Rochester, Minn., contributed a paper to the Chicago Medical Society recently on this subject, in which he said that cancer of the stomach has been a neglected field. To a large extent it has been treated by the medical men with a necessary mortality of 100 per cent. The high mortality of radical operations and the difficulties of early diagnosis have been very discouraging. Since 1900 there has been great improvement in technic, which has markedly reduced the death rate, so that removal of the pyloric end of the stomach, which is the seat of cancer in nearly 80 per cent. of these patients, can be performed in the operable cases with a mortality of 10 per cent. or less. Delayed operations in which the expectation is palliation rather than cure will, however, continue to give a high death rate, due to cachexia, hemorrhage and starvation. Even in these

cases if the operation is possible the results are vastly superior to gastroenterostomy, as return does not take place, as a rule, until a year or a year and a half have elapsed, while the mechanical function is usually maintained to the last. Gastro-enterostomy gives nearly as high a mortality and an average prolongation of life less than five months. The early diagnosis cannot often be made with exactness, and exploratory incision of the doubtful case is absolutely necessary to determine the facts. The clinical signs and symptoms are of greater value than the laboratory tests in the early stages, but no means of exact diagnosis should be neglected, and the case should be judged on its merits as a whole rather than upon any one or two symptoms. Cancer developing on old ulcer is very frequent. Our most favorable cases have been those operated upon for supposed ulcer in which malignant degeneration has been found. The growing frequency of operative interference for benign disease will have a great influence in developing better means of differentiation. In considering operation, the extent of the growth, its movability and glandular involvement should be noted on exploration. By the early tying of four blood vessels the operation is rendered bloodless. All of the lesser curvature must be removed in every case in order to secure the lymphatics of this region. On the greater curvature the lymphatic circulation is from left to right, and the receiving glands are on the right half of the greater curvature so that a larger proportion of this part of the stomach can be safely saved and greatly aids the restoration of the gastro-intestinal canal. We have operated upon 321 cases of cancer of the stomach; 94 resections of the pyloric end of the stomach were done with 14 deaths, 15 per cent.; 62 cases were traced; 15 operated upon too recently to be of value; 6 failed to live six months; 41 lived from six months to a year, and 27 are alive now; 20 from one to two years, and 13 alive; 12 from two to three years, and 9 alive; 5 from three to four years, and 4 alive; 1 lived five years. Thus we see that 5 cases lived over three years, 1 dying in three years and five months from recurrence in the liver. As but 17 who survived the operation were operated upon more than three years ago we have 29 per cent. living three years, a showing which compares favorably with the operative results for cancer in other parts of the body. One hundred and thirty-nine cases of gastroenterostomy, death rate 15 per cent., average prolongation of life less than five months. Seventeen gastrotomies, mortality 17.6 per cent. Exploration finding hopeless gastric carcinoma, 71 with 1 death in the hospital.

GENERAL.

Meningitis at Newport.—John P. Haynes, of Brooklyn, and Robert Cremeor, whose home is in Indiana, both seamen apprentices of the Naval Training Station, died at the Naval Hospital December 22 of spinal meningitis, making four deaths in ten days from the disease. There are eight other cases under treatment, one of which is considered serious.

The National Association for the Study and Prevention of Tuberculosis.—Announcement is made by the Board of Directors of the National Association for the Study and Prevention of Tuberculosis of the preliminary arrangements for the second annual meeting of the association, which will be held in Washington, May 17, 18 and 19, 1906. Two new sections have been established—one on Surgical

Tuberculosis and the other on Tuberculosis in Children. The officers of the sections are as follows: Sociological Section—Chairman, Mr. William H. Baldwin, Washington, D. C.; secretary, Miss Lillian Brandt, New York. Clinical and Climatological Section—Chairman, Dr. Vincent Y. Bowditch, Boston, Mass.; secretary, Dr. Edwin A. Locke, Boston, Mass. Pathological and Bacteriological Section—Chairman, Dr. Edward R. Baldwin, Saranac Lake, N. Y.; secretary, Dr. Hugh M. Kinghorn, Saranac Lake, N. Y. Section on Surgical Tuberculosis—Chairman, Dr. W. W. Keen, Philadelphia, Pa.; secretary, Dr. Robert G. Leconte, Philadelphia, Pa. Section on Tuberculosis in Children—Chairman, Dr. W. P. Northrup, New York; secretary, Dr. Roland G. Freeman, New York.

Koch's Expedition.—The preliminary report of the results of the expedition of Professor Koch, the German bacteriologist, to German East Africa, has just been received at the New York Post-Graduate Medical School, and will shortly be translated for the *Post-Graduate*, the school's monthly journal. Professor Koch was sent to Africa by the German Imperial Government to study the coast fever and Texas fever prevalent among cattle there. At the same time he observed the recurrent fever, one of the scourges of the natives of the East Coast. The result of Professor Koch's year's work is regarded as bearing directly upon the sanitary problems in Cuba and Panama, for it gives additional support to the mosquito theory of the propagation of yellow fever and malaria. Professor Koch satisfied himself that the recurrent fever was spread by the agency of an insect of the mosquito family, to which he gave the name of *Ornithodoros moubata* Murray. He found that it lived in the soil on the floors of the natives' huts. Of the three Europeans in the Koch party none was bitten by the insect, for none slept in the huts, but four out of five natives who used them were affected. On the other hand, none of the sixty porters suffered at all. This fact, Dr. Koch says, supports the theory that the fever is endemic on the East Coast, and that many of the natives, after experiencing mild attacks when young, become immune. The character of the disease itself, Dr. Koch found similar to the variety prevalent in Europe, though the febrile attacks were of briefer duration. The scientist succeeded, he says, in tracing the action of the bacilli from the infected eggs of the insect to the infection through its bite of the human body. Coast fever and Texas fever among the cattle, Dr. Koch traced in a similar way to the action of the Tsetse fly. In order to test varying degrees of susceptibility to these maladies, he brought cattle from the various points of the country to the infected region.

OBITUARY.

Dr. OLIVER A. BLUMENTHAL, of Syracuse, N. Y., who devoted his life to the care and cure of tuberculosis, died recently at Saranac Lake of the disease, which he contracted in the care of his patients. He spent ten years in careful study of the disease, including four years in Vienna and Berlin. He was thirty-five years old.

Dr. THOMAS Y. ABY, died at New Orleans, La., at the age of sixty-five years. He was a surgeon in the Confederate army during the Civil War, the leader of the White League in Ouachita parish and State Senator from that parish. He was appointed quarantine physician of Ouachita and afterward quaran-

tine official at the Mississippi River station. He was surgeon of the Twentieth United States Infantry during the Spanish War, and was with his regiment at the battle of Santiago, where, on account of the poor ambulance service, he and the wounded were under fire for two days. Hard service and exposure resulted in an illness which lasted over a year and resulted in his death last week.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON GENITO-URINARY SURGERY.

Stated Meeting, held October 18, 1905.

The President, Ramon Guiteras, M.D., in the Chair.

Two Cases of Undescended Testis.—Dr. Martin Ware presented these cases. The first case was that of a man twenty-eight years of age, and the second a boy of eleven. In both the condition had existed since birth. Both came to the hospital on account of very severe pain and an accompanying hernia. The Langard-Lang operation was done in both cases. In this operation the testicle is exposed with its investment of tunica vaginalis in the inguinal canal. The tunica vaginalis is divided as high up as possible. All the vessels, with the exception of the artery to the vas deferens, are severed. The testis can now be very easily mobilized and displaced downward. Along the fasciculus of the gubernaculum known as Hunter's ligament a dressing forceps is guided to the bottom of the scrotum. An incision of half an inch is made into the scrotum on the dressing forceps. The testicle at its lower pole is transfixed with a silk thread, by aid of which it is dragged into the scrotum and secured to the edges of the incision in the scrotum with two silk sutures, the ends of which are left long. These long threads are then fastened to the thigh with adhesive plaster. This device acts as an extension on the testis, and may be rendered more effective by prolonging the threads and fastening them to the toe. At the end of ten days to two weeks these sutures give way. Whether or not there is a hernia, the inguinal canal is reconstructed as in Bassini's operation.

A Case of Undescended Testis.—Dr. Franz J. A. Torek presented this case. It was that of a man twenty years of age. The patient presented himself for treatment on account of severe pain in the iliocecal region. He had had his appendix removed half a year ago, so appendicitis was out of the question, although the location of the pain corresponded to that in appendicitis. His right testicle had never appeared in the scrotum, nor had it ever been felt in the inguinal canal. It took several examinations to detect it in the abdomen, above the internal inguinal ring. The fact that this organ was the seat of his pain could now be established. The operation done in this case was the same as that done by Dr. Ware, except in the method of anchoring the testis to the thigh. In this case, after the testicle was brought down in place, an incision was made in the scrotum down to the tunica albuginea, and a corresponding incision was made on the inner side of the thigh of the same side, down to the fascia lata. The posterior edges of the the two skin incisions were sutured together, then the tunica albuginea was sutured to the fascia lata, and finally the anterior edges of the two skin incisions were sutured. The wounds healed nicely, the pain ceased at once and has not recurred. The testicle will remain anchored to the fascia lata for five or six months.

Dr. Alex. V. Moschcowitz said he would like to ask

where the tunica vaginalis was found in these cases. Practically all the text-books and monographs on the subject stated that it was in the scrotum, but in his experience it had not been found there.

Dr. W. P. Northrup asked what the indications were for the operation in these cases. He said the testicle was usually more or less atrophied in such cases, and asked why it would not be better to perform castration than to attempt to put the gland in place and keep it there.

Dr. Ware said that the indications for operation in his cases were not only the pain, but that both cases had an accompanying hernia. The latter indication alone would probably have justified an operation. A great deal of importance is now attached to the internal secretion of the testes. Certain interstitial cells that have been found in the testicle are believed to be concerned in this internal secretion. It was, therefore, important to preserve the testicle in these cases and not remove it. He agreed with Dr. Moschcowitz that the tunica vaginalis does not come down so low in cases of undescended testis as is generally stated in the text-books.

Dr. Torek said that in his case the presence of pain was the only indication for operation, there being no hernia, as in the cases presented by Dr. Ware. The tunica vaginalis was not found in the scrotum. The testicle in his case was somewhat atrophied, but he thought it was best to preserve it on account of its internal secretion and on account of the better mental effect on the patient.

A Case of Amputation of the Penis and Scrotum for Epithelioma.—Dr. Follen Cabot presented this case. The patient was operated on in November, 1904, at the City Hospital. He had syphilis twenty-three years ago, for which he received no treatment. Nine months before he entered the hospital he noticed a small lump under the foreskin, which was very long and tight. The lump gradually increased in size, and when he came to the hospital the whole penis was practically destroyed, the urine passing through fistulous openings. The scrotum was about the size of a child's head. There was a great deal of extravasation, and the glands in the groins were involved. He had lost forty-five pounds in weight. The bladder could not be entered by way of the penis, but was entered through a perineal incision. The healthy portion of the urethra, about two or two and a half inches, was brought out and stitched to the perineal wound. The penis was removed and also about two-thirds of the scrotum. The groins were opened up on both sides, and the glands enucleated en masse. One of the testicles was entirely cystic, and was removed. The other was left in place. The present opening in the perineum takes a 28 F. sound. Patient holds his urine the usual time and has no discomfort. He still has sexual desire. The interesting points were the very rapid extension of the process and the good result after a year. A specimen examined with the microscope showed that the growth was an epithelioma. Dr. Cabot said that in the last year he had seen four cases of cancer of the penis, all of whom had redundant foreskins which were very tight, and he believed that condition was a factor in causing the disease. The sound is passed occasionally to keep the opening patulous. The patient has been cystoscoped several times, and the bladder is healthy.

Dr. Howard Lilienthal said that the operation in this case was a very beautiful one, and the result the best he had ever seen. He said that if anything was to be done in these cases it should be a complete operation.

Dr. Winfield Ayres was surprised that the retroperitoneal glands were not involved in this case. He had seen several cases in which the corpora cavernosa were diseased, and in every case the retroperitoneal glands were implicated.

Dr. Cabot stated that the retroperitoneal glands were involved, and that they were removed at the time of the operation.

Specimen of Urethral Calculus.—This specimen was presented by Dr. Frederic Bierhoff. It was a large-sized urethral calculus, removed from a man of fifty-nine years of age. He had suffered with increased frequency of urination both day and night, and pain and tenesmus for ten years. During all this time the urine was turbid, and at times the patient noticed a terminal hematuria. There was no history of renal calculi or of further bladder symptoms. Patient had one attack of gonorrhea thirty-five years ago, uncomplicated, and of short duration. Difficult urination and pain during the act had gradually increased, until a short while before he came for treatment he was at times unable to void his urine at all. The urine was turbid and purulent, and contained numerous micro-organisms. Examination of the prostate per rectum showed that it was absolutely normal. An attempt was made to pass an ordinary flexible catheter with the Mercier curvature, but it could not be passed beyond the fossa navicularis. The largest-sized catheter that would pass was a 15 F. metallic catheter, under cocaine anesthesia. Several strictures were found in the anterior urethra, and when the beak of the catheter entered the bulb of the urethra it grated upon a foreign body. An endoscopic tube was forced through to the foreign body, and the calculus was found. An attempt was made to remove it by manipulation and pressure from behind. It was dislodged from the bulb and worked along to the lowest stricture. This was done by injecting a sterile lubricant into the urethra and gradually manipulating the calculus out of the pouch. Forceps were pushed through the strictures, and the latter were forcibly dilated. The stone was then caught by the forceps, but they would not hold. The stone was gradually worked out to the fossa navicularis, from which it was finally removed after cutting the meatus. The patient had no reaction. Since then he has passed his urine without trouble.

Dr. Follen Cabot said he had seen one case in which the stone could not be removed by the urethra. It was pushed back into the bladder and later crushed.

Dr. Martin Ware had seen three cases. He was of the opinion that the blunt curette was the best instrument with which to remove a stone that did not call for a perineal section.

Dr. Simon J. Walsh had removed two urethral calculi with a blunt curette. In one of his cases he had opened the bladder while operating on an inguinal hernia. The patient came afterward, complaining that he could not void his urine. On examination a calculus was found in the urethra. A Thompson's dull curette was passed behind the stone, and the latter was removed. It was cut open, and in its center was found a silk suture that had been used in sewing up the bladder at the previous operation.

Dr. Bierhoff said that if we could get a blunt curette behind the calculus, that would certainly be the best way of removing it, but that that was not always possible. Sterilized vaseline might be injected into the urethra, behind the calculus, and the stone be expelled in this way. The lubricant plus the dilatation made it possible to remove the calculus in his case. He was of the opinion that urethral calculi were not so rare as was

generally supposed. He had seen a number in children and adults. Some were passed spontaneously. He doubted whether one was justified in calling these *urethral* calculi, as they were probably displaced vesical calculi. The present case, however, dated back ten years, and he believed that the calculus had been in the urethra all that time or longer, and that a great part of its deposit was laid upon it during its sojourn there.

A New Catheterizing Cystoscope.—Dr. Winfield Ayres presented this instrument. It is modeled after the one devised by Dr. Brown, but has several new features. The cystoscope case is of metal and can be sterilized. Besides the direct view telescope, which is also used for catheterization, there is provided an additional telescope with a prism for indirect observation of the bladder. A fenestrum is cut on the superior surface of the sheath to accommodate the latter. The catheterizing portion is simple and easily sterilized. In place of tubes for the catheters there is a fin on the lower surface of the direct view telescope which divides the sheath into two chambers for the catheters. Also by this means the cystoscope may be removed without disturbing the catheters more easily than with any other cystoscope. The bladder may be washed out through the sheath of the instrument, thus saving the passage of a catheter and more quickly cleansing the bladder. An important feature is that the telescope does not project beyond the sheath at the bladder end. The light is situated at the angle instead of at the beak, thus bringing direct illumination at the end of the telescope where it is most needed. The lamp is protected by its situation and, in addition, is enclosed in an air-chamber. For inspection of the bladder in cases of severe hematuria where water cannot be used, an air-cap is provided. The instruments are made in three sizes—No. 26 for use by the beginner. This gives a large field and catheterization with it is more easily performed than with the smaller instruments. The No. 22 instrument is the one most used. No. 17 has been made for use in children and adults with strictured urethra. In nearly all cystoscopes the angle is the widest part, but in this one the angle is the smallest part. This makes the cystoscope pass through the urethra more easily than another of the same calibered sheath.

Hypernephroma.—Two specimens of hypernephroma were presented by Dr. Howard Lilienthal. He defined this condition as an aberrant adrenal tumor occurring in the kidney. It is peritheliomatous in its histology, contains numerous blood vessels, and usually has a peculiar honey-yellow color. It is probable that the germs of this tumor are present from birth, the tumor remaining stationary until sometime in after life, when it increases in size and forms metastases. The tumors are not, as a rule, very malignant until this time of increased growth occurs. Then they may become very malignant indeed, although those he had met with were rather slow in development. The patients are in danger of dying on account of repeated hemorrhages from the kidney. If the kidney is removed early enough the outlook as to recurrence is fairly favorable, but if adhesions have taken place, a recurrence is almost certain to occur in some distant part of the body. The flat bones and the liver are the parts most commonly the seats of metastases. There is one very interesting thing about the recurrences: The secondary tumors are very frequently pulsating in character, giving a genuine aneurismal thrill, which makes them easily mistaken for a true aneurism. The first case he met with was one of a secondary growth in the liver of an old man. The growth was at the free border of

the liver, and was about the size of a hen's egg. It was at once pronounced a perithelioma by Dr. F. S. Mandiebaum, pathologist to Mount Sinai Hospital. The man died a few months afterward. One patient had been in the hospital for nearly two years with secondary tumors of the pelvis and the sacrum. At the end of two years he lost patience and was sent to a home for invalids. He did not become cachectic. The tumors increased in size, were scraped out and healed over again, but were not entirely eradicated. The important thing to remember is that whenever there is a case of hematuria which is unaccounted for in any other way, hypernephroma is the disease which should be thought of, whether we can feel the tumor of the kidney or not. The second case he had was that of a woman who had bleeding from the right kidney. Nothing could be felt, but in the total absence of any diagnosis that of hypernephroma was made, on operation the tumor being found at the superior pole of the kidney. The patient made a good recovery, and she is well to-day. Two specimens were presented. The first was a very large left kidney, which was removed three or four years ago from a woman about sixty years of age. She came to the hospital on account of hematuria, not knowing she had a tumor. The kidney was removed, and she made a beautiful recovery. In about a year she came back with a strongly pulsating tumor of the frontal region, about as large as a hickory nut. This could have been easily mistaken for an aneurism. But knowing about the tumor of the kidney, an exploration was made. On compressing the carotids it ceased pulsating. The left common carotid was ligated. Then a flap was made around the tumor, and the skin dissected up. It was found that there was an enormous opening straight into the skull. Enough of the tumor was scraped out to remove the greater part of its bulk, and sent to the laboratory for examination. She made a good recovery from the operation, but gradually the tumor increased in size and invaded the brain, and finally she became aphasic and then hemiplegic. She was then lost sight of. The other case was operated on last April. The patient, a man of about fifty years, had had the tumor for several years. He had had occasional attacks of hematuria, which was never very serious. He knew he had a tumor of the kidney, but did not consent to an operation until last April. A diagnosis of hypernephroma was made before the operation. The kidney was removed, after the presence of the other kidney had been established and its functional capacity roughly determined by the indigo carmine method. The kidney was removed in the usual way. The patient made a beautiful recovery. He was seen over a year after the operation, and he was still in excellent general condition, and there were no signs of recurrence or metastasis. Unless hemorrhage threatens life, do not operate if metastasis is found anywhere in the body. These tumors nearly always have a peculiar honey-yellow color that cannot be mistaken when the incision is made. Dr. Lilienthal had had eight cases on which he had operated. All made operative recoveries.

Dr. Ramon Guiteras said that hypernephroma was probably the most interesting lesion of the kidney from a surgical point of view that we have to-day. He had had but one case, and that recurred afterward.

Dr. Lilienthal said that the youngest patient he had seen with a hypernephroma was an adult of thirty-three years. He had no doubt such cases had been operated on in children and called sarcoma. Although these tumors are undoubtedly congenital, malignancy does not occur until adult life. These cases are not

as rare as is generally supposed. He had had eight cases personally, and all the cases had come for treatment on account of hematuria. He said he desired to call particular attention to this as a symptom. Before making a positive diagnosis in a case of hematuria we should always exclude hypernephroma.

SECTION ON SURGERY.

Regular Meeting, held November 16, 1905.

The President, Charles L. Dana, M.D., in the Chair.

The Surgical Treatment of Cirrhosis of the Liver Associated with Ascites.—Dr. Forbes Hawkes said that in its present state of development the statement might conservatively be made that the operation offered the only distinct hope, small though they might be, which could be held out to patients suffering from this disease. He said that it was of the utmost importance that medical practitioners should be on the outlook for favorable cases, because from a study of operations on such cases alone and not upon conclusions reached by statistics furnished from unfavorable cases should the final judgment of the operation be made. The author described the technic of Talma's operation in considerable detail, and before reciting the notes of his own interesting case, stated emphatically that immediate cessation of ascites should in no case be looked for, every operative case having necessarily to undergo at least several tapplings before cure could be hoped for. The transudation in Dr. Hawkes' case before operation amounted to from three to four quarts per day. This appalling increment in itself was sufficient to justify immediate operation. The patient was so profoundly weak that the operator was unable to accomplish more than a simple ventral fixation of the omentum. The wound healed primarily and in and about it an astonishingly large caput medusae developed. He considered that this caput formed a valuable index of the degree of improvement which had been wrought by the surgical intervention. He described the form of drain used and stated that it was important that abdominal drainage be maintained.

Dr. George E. Brewer, in opening the discussion, said that his experiences with the technic had been unfortunate. The technic had been developed as a result of a study of a case which had been cured by repeated tapping. The adhesions were found to carry a well developed venous return. He agreed with Dr. Hawkes that the subjects for the operation should be carefully chosen, all his earlier cases having had chronic nephritis. He reported a case which had been observed at Roosevelt Hospital occurring in a man forty years of age with marked alcoholic history. The ascites was indescribable. The patient was unable to stand; he was cyanotic, emaciated and had almost imperceptible pulse. At the first tapping forty-eight quarts were drawn off. He refused operation and one and a half years' later walked into the hospital in apparently perfect health and announced that he had been cured by Christian Science. This case of doubtful pathology, Dr. Brewer said, exemplified the fact that there were other conditions besides hepatic cirrhosis which might lead to abdominal ascites. Chronic peritonitis, for example, whatever its pathology might be, unquestionably led to ascites. He spoke of the case of a woman whose mesentery and entire peritoneum was tremendously thickened. It was not tuberculous, but a simple proliferated peritonitis. In conclusion

he said that Talma's operation must be done early to get good results.

Dr. C. A. McWilliams reported a study of eleven cases from the Presbyterian Hospital. Four had survived the operation. Of these one was operated on four years ago and was now absolutely well. Another, eighteen months ago, was absolutely well. Another was not helped at all, death in six months. The fourth case was still in the hospital. Reports on 267 cases gave a mortality of over sixty per cent. Did the results warrant the operation. Jaundice, he said, was probably a definite contra-indication, as was also renal involvement. He considered the operation applicable to hypertrophic as well as to atrophic cirrhosis.

Dr. G. E. Edebohls reported four cases. One case of peculiar interest occurred in a business man who, when operated upon, was in coma and delirious. A large omentopexy was done and 20 or 25 sutures were used. During the first three weeks of convalescence it was necessary to tap this patient three times. The man had been at his business now for a long period and was apparently cured. The speaker said that even if such a result as this were obtained in a discouragingly small proportion of cases, nevertheless occasional success seemed to justify the employment of the technic. The fourth case which he reported was unique. It had been diagnosed as Addison's disease. There was a marked hypertrophic condition of the liver, but no ascites. The Talma operation was done in the hope that it might give the liver a chance to recover. In from four to five weeks the hepatic tumor had visibly diminished. The itching, which had been intolerable, ceased and cachexia abated. This case seemed to the speaker to demonstrate that the technic might be used in chosen cases even where there was no abdominal ascites. He considered the important point in the technic to be the omentopexy rather than extensive excoriations of diaphragmatic and hepatic surfaces where adhesions did not form.

Dr. George Stewart said that he did not consider it possible in many cases to do a typical Talma operation. Some one, whose name he could not at the moment recall, had recommended placing the omentum in a pouch of peritoneum. This was, in his opinion, better than the placing of it beneath the skin, as had been suggested by a previous speaker. Great care, he said, should be used not to destroy the veins which in all these cases nature may be seen to be making.

Dr. A. L. Fisk said that in a recent summing up of the subject in the *Boston Medical and Surgical Journal*, the authors had reached the conclusion that the operation was unjustifiable. He agreed with Dr. Stewart that it should be undertaken only after great care and consideration.

Dr. Lloyd said that he had operated seven times. Four of his patients had died in from three to eight weeks. In one of the remaining three there was a positive and perfect cure. The second case bore very definitely upon the subject of pocket formation for the omentum which had already been discussed. Unable to pursue the usual technic in this case, the speaker reported that he had taken out a large area of parietal peritoneum and had attached the omentum to the denuded area. The results were remarkable. The abdominal veins which, prior to the operation had been either invisible or inconspicuous, became in an incredibly short time immensely dilated. The ascites decreased rapidly. Six months

later this patient was reoperated and abdominal drainage was instituted. Infection and death followed. Dr. Lloyd agreed with Dr. Brewer, who had said that if the drainage recommended by Dr. Hawkes or indeed any form of drainage were used, the most scrupulous attention should be paid to aseptic details and dressing. His third case reappeared at the dispensary ten days ago. He was working, but reported that he still had to be tapped occasionally and gave evidence that he would soon suffer relapse. Dr. Lloyd did not agree with Dr. McWilliams that jaundice was a contra-indication for the operation unless it had been of such long standing as to produce pseudo-hemophilia. Dr. Hawkes, in closing, said he did not agree with Dr. Edebohls' statement that adhesions were not prone to form between the liver and the diaphragm. It was self-evident that the subjects for this operation must be most carefully chosen. In patients suffering as had Dr. Brewer's from complicating renal disease, he agreed that local anesthesia would be of very great use. He also corroborated the statement that drainage, if instituted, should be carried on only under the very best aseptic technic.

Cholecystectomy with the Report of 26 Cases.—By Dr. John F. Erdmann. (This paper will appear in full in a subsequent issue of the *MEDICAL NEWS*.)

Dr. Forbes Hawkes in discussing Dr. Erdmann's paper said that he agreed substantially with the author's stand that in almost every case it was wisdom to remove the bladder rather than to do cholecystostomy or cholecystenterostomy.

Dr. C. L. Gibson said that after the extirpation of the bladder there was no further fear of complications arising from the permanently impaired organ. The operation of removal was, he said, in uncomplicated cases a simple procedure. Adhesions, like many other undesirable strictures in the body, were prone to vanish as soon as the need for them had disappeared. Permanent sinus formation, he said, might be due to the use of non-absorbable suture material or to bad technic.

Dr. Elsberg said that in eighty cases recently operated upon at Mt. Sinai Hospital, almost all had been subjected to the radical operation rather than to the palliative one of establishing drainage. He describes the technic used at Mt. Sinai in detail and said that drainage was indicated in all cases where the disease was not strictly localized in the bladder.

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Regular Meeting, held November 28, 1905.

The President, W. G. MacCullum, M.D., in the Chair.

Adenocarcinoma of Stomach.—Dr. Sauers showed this case. The patient was a male, forty-three years old; admitted to the hospital in June complaining of pain, in the umbilical area, which had grown worse since Christmas. He had had discomfort for two years, and during the last year had lost forty pounds in weight. He had had six attacks of vomiting after attacks of pain and not associated with eating. He had quit work in December, and had taken no solid food for three months. On examination the patient's color was good, abdomen was scaphoid with pigmented areas over the epigastrium from plasters. Though weak, patient felt good, except when he had attacks of pain, which were brought on by taking any solid food and were worse in area of umbilicus. The bowel felt firmer in region of splenic colon, otherwise the abdominal examination

was negative. Patient was operated on by Dr. Bloodgood June 29, the peritoneal cavity being opened by a median line incision from ensiform to below the umbilicus. A carcinomatous growth was found on the lesser curvature of a moderately dilated stomach 3 cm. below the pylorus. Practically all the lesser curvature was removed, together with an adjacent gland showing metastasis. All the fat was removed with lesser curvature, and adhesions binding the stomach to the pancreas were broken up, showing an area of induration in the central portion of the pancreas. The duodenal and stomach ends were reinforced, a loop of the duodenum being anastomosed to the posterior wall of the stomach. The pancreas was left intact, an inflammatory induration of the pancreas, in cancer of the stomach, not indicating removal as a cancerous involvement would. Patient left the hospital on July 30 and has since gained 32 pounds in weight; he has had no vomiting or pain, and bowels are regular. After a test meal of 100 c.c., 12 c.c. were gotten an hour later. Pathologically, the tumor, which was a large fungus mass on the lesser curvature of the stomach reaching to within 3 cm. of pylorus, was an adenocarcinoma.

Congenital Stenosis of the Pylorus.—Dr. Charles S. Scudder, of Boston, said that until recently cases of congenital stenosis of the pylorus have been seldom recognized. The disease has been almost universally fatal. The first case reported was by Beardsley, of New Haven, in 1788. A case was reported in 1841 and a case in 1842. These were the only two reported during the 100 years between Beardsley's report in 1788 and Kirschbaum's in 1888. Since 1888 there have been thirty-five autopsies with findings both definite and constant. These findings were an emaciated body; a pyloric tumor varying in size from an olive to a walnut, of firm consistency, hard and with no adhesions about it. The tumor was movable and the surface smooth and uniform. The stomach was hypertrophied, thick and dilated; the intestine below, collapsed and empty. The pyloric opening is reduced in size, and a section of the tumor shows a thickening of the arc fibres of the pylorus. There have been sixty-three operations for stenosis of the pylorus in children, in which the surgical findings have been the same as the pathological findings above mentioned.

Clinical Symptoms.—The child is born apparently well. After the first twenty-four or forty-eight hours it begins to vomit, which is the first sign to attract attention. The vomiting is characteristic, sudden, unexpected, violent and projectile. The vomitus is contents of the stomach received at previous feedings. It is always free from bile, for no bile can get back through the pylorus. There is no increase in HCl, nor any sign of fermentation. It is the feedings practically unchanged. If the child will be watched when being fed and shortly after, a peristaltic wave will be noticed going over the stomach from left to right. This visible gastric peristalsis is a constant sign and should be looked for. A pyloric tumor can be felt a little to the right and above the umbilicus in a majority of the cases. A large liver may obscure it, or it may be well above the edges of the ribs. The visible peristalsis of the stomach may be simulated by muscular contractions of the abdominal wall and by peristalsis of the transverse colon. The ejections are small in amount and not fecal in character, but meconium-like. The importance of determining the presence of each of the above signs cannot be emphasized too strongly. Dif-

ferentiation between atresia of the duodenum, which up to now has practically always been fatal, and an almost complete obstruction of the pylorus is very difficult. Infant dyspepsia or indigestion is also very difficult to differentiate, being very likely to be mistaken for partial obstruction. In infant dyspepsia the contents of the stomach are fermented, the tongue is coated, the breath offensive and there is diarrhea. In partial stenosis the tongue is not coated, the lips are dry and the breath is sweet.

Prognosis.—Up to the present time medical treatment has been fatal. It has alleviated but not cured; the variation in diet, lavage and opium in partial stenosis has relieved the patient. Surgically pylorotomy was done in one case, but the child died, the operation being a too serious one. Pyloroplasty was done four times. Loretta's operation was done in seven cases, four of which died. Gastro-enterostomy was done twenty-one times successfully and nineteen times unsuccessfully. There are two reasons for failure in operation: one, when the child has been extremely weak and operation is the last resort; the other, faulty technic. In one case a Murphy button caused an obstruction and the child died. In another the mucous membrane was not excised and, being bulky, blocked the opening. In three cases the sutures caused kinking. In the Loretta operation the duodenum was ruptured posteriorly, and the child died from peritonitis. In pyloroplasty there was also an obstruction from non-removal of mucous membrane. In a Mikulicz operation of anterior gastro-enterostomy, the child lived for three months and then died from duodenal ulcers. Two cases were operated upon last summer. The first was on a child of fourteen days with classical symptoms. This child has not nursed. When these symptoms are found in a breast-fed child the possibility of stenosis should be carefully considered. In the bottle-fed children they are not so important. In this case the characteristic signs of stenosis were present. The tumor was found and felt on the fourteenth day. A posterior gastro-enterostomy was done. At operation the child weighed 8.2 pounds; now, three months later, the weight is 13 or 14 pounds, the child having gained steadily from tenth day after operation. The second case, which had vomited persistently from second day after birth, underwent a successful operation.

Technic.—All those factors which contribute to shock should be eliminated as nearly as possible. Attempt to avoid loss of body heat. Attempt to do the operation in a cleanly fashion. Attempt to obtain absolute hemostasis. Rapidity in operation and gentleness in handling the parts operated upon are most important factors. The gentlest touch should be used, for the baby tissues will not stand handling like the tissues of an adult. Trauma and traction of the bowel may have a serious effect on peristalsis, causing tympanites. The tissues not being operated upon should be isolated from the operation ahead, only the parts that are absolutely necessary being brought outside the abdomen. There are three hypotheses as to the cause of hypertrophy of the muscular fibres. Nichols, of Glasgow, thinks that the hypertrophy is an overgrowth of the normal muscular tissue. Thompson thinks the hypertrophy is due to an inco-ordination of the nervous mechanism of the stomach, causing the musculature to contract violently and hypertrophy. Founder thinks that a postnatal irritation of the gastric mucous mem-

brane causes hypertrophy. Brünér's glands have been found in the section of pyloric muscle, and this condition being a congenital anomaly, the hypertrophy may be likewise. The after-feeding of these infants should be intrusted to a skilled pediatricist. The two cases reported were fed by Morse and Townsend, of Boston. They gave milk from a bottle, starting with a half ounce and gradually raising by the end of the week to the amount normal for each child. The sections thrown on the screen showed hypertrophied stomachs and pyloric tumors. In all cases there was a narrowing of the lumen. To within a short time the majority of the pediatricists of this country have given but little concern to this condition. In conclusion, the disease does exist, and it has a definite pathological and clinical picture. Medical treatment has failed to demonstrate that it can cure. Surgery has demonstrated that it can care for something more than half the cases.

The Relation of Dilatation of the Duodenum to Gastric Disturbances.—Paper read by Dr. J. M. T. Finney. Five or six years ago upon opening the abdomen for a variety of conditions, particularly conditions of the stomach, duodenum and gall-bladder, a condition was found which was not mentioned in the literature, *i.e.*, a dilation of the duodenum with a patent condition of the pylorus. At that time pyloroplasty was done for want of something better. The patients gave a history of indigestion for months or years, of nausea and vomiting, and symptoms that were indefinite but distressing. Most of the patients had had medical treatment without results. In all the cases there was Glenard's disease. The condition presented by the patients was unsatisfactory for operation. When these cases were first noticed gastro-enterostomy was in its infancy. Nothing that was done seemed to benefit the condition. The nearest to a description of the condition was a paper read by A. J. Ochsner in San Francisco this year, in which he reports 14 cases. Mayo, in a recent article on stomach diseases, refers to this condition. He says it is associated with enteroptosis, but does not say what to do for it. Four years ago, after an operation for gall-stones, the patient began to vomit and vomited until she died. At autopsy there was found a dilated stomach and dilated duodenum, but no lesion could be found. Autopsies on forty-six postoperative cases, only one of which was recognized clinically, have been reported from Vienna. The duodenum passes behind the superior mesenteric vessels, the superior mesentery itself running down to the right iliac fossa. When the stomach is much dilated, filled with fluid and has descended to the pelvis, there is a dragging on the mesentery and vessels. This is apparently the obstruction. To the proximal side the intestine is dilated, and at the distal side it is collapsed. Rokitansky in the fifties suggested that this condition might happen. Glenard also suggests that dragging on the mesentery might obstruct the duodenum. In four of the forty-six Vienna cases the stomach was not markedly dilated, though in most of the cases it had descended. The explanation is not satisfactory for the condition. The dilatation is the effect not the cause, though it may be both. Two cases have been reported after operations other than abdominal, one being a breast removal and the other an operation on the elbow. Schnitzler suggests that it takes place after anesthesias, particularly after chloroform.

Prevention, Prognosis and Treatment.—Only one case was diagnosed before autopsy. The treatment is postural. Put the patient in the knee-chest position for fifteen minutes every two hours or have her lie on the left side with hips elevated. Lavage has been tried with some success. The condition generally occurs in nervous patients who are not well nourished and who have an enteroptosis. The condition is not necessarily a fatal one, though it has not been recognized. A jejunostomy is the operation to get below the obstruction. Diagnosis is made rather upon the continuous vomiting. In some of the cases the obstruction has been near the pylorus, in others below the papilla of Vater, for the patient vomits great amounts of dark bile stained fluid. This condition, with both the anti-operative and postoperative types, is a definite entity. No other observer has noted the circular, muscular bands around the duodenum, which Ochsner noted and who draws an analogy between a pylorospasm and a spasm at the ileocecal valve. Gastro-enterostomy has been done several times and found wanting. In postoperative cases the postural method of jejunostomy might be tried.

In discussion Dr. Barker asked if peristalsis had been seen in the duodenum; was it paralytic or hypertrophic, and would it be possible to unite duodenum and jejunum. Dr. Finney, replying, said that the duodenum was always atonic and that a duodenojejunostomy was possible, though it would throw out a valuable portion of the bowel.

Dr. Hemmeter said that an "hour-glass stomach" had been brought to him which, on examination, showed no scar and proved to be stomach and duodenum. There are three causes for dilatation in hollow muscular organs: first, abdominal fermentation; second, mechanical causes, such as the ring described by Ochsner and the dragging of the mesentery; third, faults of innervation, Meltzer's reciprocal innervation theory, *i.e.*, simultaneously as an impulse travels through and contracts the longitudinal fibers, the circular fibers relax, *e.g.*, contraction of stomach and loosening of the pylorus. Boas has described infra-, papillar and suprapapillar obstruction. In only the cases below the papilla of Vater is there pancreatic juice in the vomitus, hence the trypsin test may be of considerable diagnostic value.

Dr. Cushing said that he agreed with Dr. Hemmeter that the trouble is in the thin walled stomach and duodenum associated with Glenard's syndrome, and that the tenth nerve is a considerable factor. A division of the tenth nerve in an animal leads to incessant vomiting until death occurs. In the separation of adhesions around a pylorus and gall-bladder, the fibers of the tenth nerve may be so injured as to throw out this area and allow dilatation. A case from private practice was a female fifty-seven years old. There was nothing in the past history that had any bearing on the symptoms, except that at seventeen she had had jaundice. She was a thin multipara, with the lower border of the stomach below the umbilicus. At operation a dilated stomach and duodenum were found with the scar of an old ulcer at the pylorus. A pyloroplasty could not be done on account of the sagging of the stomach, so reversed the pyloroplasty, shortening the lesser curvature. Patient vomited for ten days incessantly, but gradually stopped and now is well. An operation of the same type as this modified pyloroplasty can be done at the ileocecum.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held October 3, 1905.

The President, Arthur P. Hichens, M.D., in the Chair.

Ventrosuspension of the Uterus.—Was read by Dr. Swithin Chandler, who stated that the operation held the same place in surgery as appendectomy, and among the underlying causes of the condition were mentioned: Relaxed ligaments; loss of support of pelvic floor; absence of intelligent treatment during labor and the puerperium; disease of the uterus; displacement *per se*; tumors of surrounding organs; disease of surrounding organs with or without adhesions; injuries to the uterus; faulty diagnosis and treatment of conditions not existing. He directed particular attention to the importance of absolute certainty in diagnosis, and stated that the fixation should be undertaken only by a surgeon competent to perform the most difficult abdominal operation. He reviewed in detail the various operations, including the intraperitoneal shortening of the round ligaments; the Alexander operation, and considered the suspension of the uterus by suturing the fundus uteri to the perineum to be the ideal procedure, but did not believe in the use of the pessary. He also urged careful technic, and particularly that no blood be left in the abdominal incision.

Dr. M. P. Warmuth felt that the fixation operation was the one that should be done in the majority of cases, at the same time repairing any lacerations of the pelvic floor and removing endometritis if present by curettage. He reported several cases of ventrofixation which had subsequently caused such complications, which are particularly likely to occur during subsequent pregnancies.

Dr. Luther C. Peter felt that if the statistics of the operator were supplemented by those of the general practitioner they would probably show up somewhat different, and referred to the case of a multipara, aged thirty years, in whom an Alexander operation had been done with absolutely no results.

The Etiology and Treatment of Constipation.—Was read by Dr. Herman A. Brav, who stated that the condition was more frequent in females than in males, and in adults than in children. One of the prominent cases cited was uterine trouble, and among the results were enumerated rectal disease, anal fissure, ulceration of the rectum and sigmoid flexure, proctitis and peri-proctitis, and headache, loss of memory and inability to concentrate thoughts are prominent symptoms. The causes the author gave as mechanical obstruction; defective peristaltic action; deficient intestinal secretion; deficiency of liquid; nervous instability, etc. The underlying cause should be diagnosed and treatment directed to the removal thereof. Stricture of the sphincter and he believed was one of the chief causes, and this should be remedied by dilation under local general anesthesia. The treatment he outlined as follows: Light diet, plenty of fruit, such as oranges, figs, apples, stewed prunes; drinking a tumblerful of water on rising in the morning; regular hour for defecation; avoidance of sedentary life; purgatives should not be given, and only medication of the mildest possible kind employed. The injection of olive oil, electricity and massage, in conjunction with hygienic and dietetic measures are of value, and the exact treatment must be decided for each individual case.

Dr. Swithin Chandler emphasized the importance of paying strict attention to the diet, and called attention to the fact that some of the cereals if taken repeatedly had a tendency to cause the condition, and urged as a

routine measure the thorough examination of the patient to discover the causative element.

Dr. Wendell Reber referred to the fact that many cases of constipation show a peculiar condition of the optic nerve with intense fulness of the lymph tubes, as indicating defective elimination, and urged as important factors in the treatment cold sponge bath in the morning and hygienic and dietetic regulations.

Dr. Carle Lee Felt referred to the case of a girl suffering from constipation who had been treated for a long time by drugs, electricity, etc., with absolutely no effect, when strychnine was pushed to tolerance, which quickly cured her, and when she returned again two or three years later, the same drug quickly gave relief.

Dr. Luther C. Peter stated that a great many nervous conditions could be traced to constipation as a causative factor, and that he believed that strychnine was one of the best drugs for combating the condition. He referred to the fact that, while constipation was more frequent in adults than in children, diarrhea was more common in the latter class, which could probably be explained by the same cause, *i.e.*, defective peristaltic action. In conclusion he asked Dr. Brav whether he considered the constant use of enema harmful.

Dr. Nathan G. Ward stated that, in addition to the absorption of toxins, the defective elimination threw additional work upon the respiratory organs, as a consequence of which we have congestion of the mucous membrane of this tract, often resulting in nasal obstruction and interference with breathing, and if allowed to continue for a sufficient length of time will produce hypertrophy requiring operative relief.

Dr. Albert Bernheim believed the constant use of purgatives was detrimental, and stated that many of the cases who reported to the physician that they had a daily bowel movement, in reality had feces impacted around the edge of the colon, while the center might be in a condition which would cause diarrhea-like movements. He believed that the mode of dress, particularly in women, in many cases had much to do with the production of the condition; horseback riding has been proven to be a causative factor by the officers in the American as well as in European and other armies. Enema may be given for a long time without any deleterious results, preferably by means of a soft rubber tube; glycerin, eserine, massage, etc., are of value.

Dr. Lewis S. Somers recommended that the patient be instructed to spend a longer time at stool, during which his whole mind should be on this act, no books or papers, etc., being taken to the closet by the patient. He referred to the work of Dr. Stickney, of Kentucky, who has been treating cases of pharyngitis by means of washing out the bowels several times a week, followed by injections of half a pint of olive oil, and claims to be securing good results; the speaker expressed the belief that in many cases of this character treatment would be effective without surgical interference.

Dr. Brav, in closing, stated that he believed the condition of the eye-grounds to be an important diagnostic factor in these cases and that frequently headaches resulted from reabsorption of the liquid part of the fecal products. Constant use of drugs and purgatives he believed to be harmful, as also the constant employment of enemata, as this caused an overdistention of the bowel. He urged the necessity for a thorough digital examination in every case.

The Diagnosis and Treatment of Chronic Urethral Discharges. Was read by Dr. S. Leon Gans, who considered (1) those due to lack of attention on the part of the patient, and (2) those due to lack of judicious treatment. He considered in detail gleet, chronic gonorrhea and chronic prostatorrhea. Masturbation, horseback riding, or bicycle riding may be the cause of the condition. The diagnostic points, and particularly the two-glass test, were carefully reviewed and the findings discussed.

BOOK REVIEWS.

THE DIAGNOSTICS OF INTERNAL MEDICINE. By GLENTWORTH REEVE BUTLER, Sc.D., M.D. Second revised edition. D. Appleton & Company, New York and London.

THE instant and universal acclamation given to the first edition of Butler's *Diagnostics* was an unexpected tribute paid to a comparatively unknown man, and an emphatic refutation to the cry that only college professors can get their books published. It made its appeal to the student, and by reason of its originality of construction, its forceful and accurate mode of presentation and its illustrative features, often commented on by rival publishers as indelicate, if they did not say worse, by reason of those trenchant characters it sprang at a bound to the very head of its class.

We have already pointed out that it is not a book for the specialist; but for the student it is admirable, and the second edition is an improvement on the first. The pictures have in many instances been "fig-leaved," out of deference to the opinions of the Anthony Comstock in the profession.

Several notable changes are evident in the new edition. One feature is the introduction of a chapter on Mental Diseases—an innovation in its line—and much to be desired. The profession at large, and particularly the book writers, seemed to be possessed with the ancient ignorant superstition that mental diseases belong to "theology." The mind is possessed. By their neglect of the subject in their text-books they give the lie to their protestations that they believe that mental diseases are as other diseases, else why are they not included in their works on human medicine. Here at last we have a book that does not neglect perhaps the most important and most intricate of the problems of disease manifestation. The very ignorance on the part of the general practitioner of what mental diseases are is responsible in no small measure for the filled-up asylums. One hears the profession prating about prophylactic medicine—what is being done by the rank and file to lessen the ravages of mental deterioration? It might be added with reference to this chapter by Dr. W. A. White that it is excellent. Although compressed within a very small compass, we believe it is the best summary of modern psychiatric teaching in the English language.

An excellent chapter on X-ray Diagnosis has also been added, and a number of minor changes have been made.

Taken in its new form the book stands almost alone for conciseness, clarity and excellent proportion. Every medical student in the country should have it and no practitioner will fail to get double his money's worth.

ATLAS OF TOPOGRAPHIC AND APPLIED ANATOMY. By Professor Dr. O. SCHULTZE, of Würzburg. Edited with additions by GEORGE T. STEWART, M.D., Professor of Anatomy and Clinical Surgery, University

and Bellevue Hospital Medical College, New York. Quarto volume of 187 pages, containing 25 figures on 22 colored lithographic plates, and 89 text cuts, 60 in colors. W. B. Saunders & Co., Philadelphia and London.

THE work of Professor Schultze is well known to all teachers of anatomy in this country. It is, however, a marked step in advance, not only for such teachers, but for every surgeon, and certainly for every student of medicine, to have within his reach in English and edited by such a master of anatomy and surgery as Dr. Stewart, this essentially practical atlas and text-book. As its name implies it is a combination volume presenting the essentials of a text-book with the details of an atlas. The average anatomical education in this country, even at the best medical schools, is singularly deficient in the very subjects touched upon in this book. Nowhere, in all probability, is theoretical anatomy more excellently taught than here, and similarly in no quarter of the civilized globe is so little known by the average student, of practical, surgical anatomy. Throughout the present edition we are fortunate in having many annotations and invaluable notes interspersed in the text by Dr. Stewart. His work is so favorably known in this country that any further comment here upon its excellence is quite unnecessary. Attention may, however, be called to the interesting system of review questions which are found at the end of each chapter. These are arranged to cover the matter very thoroughly and are a distinct innovation in the literature of this subject. A full and rapid sale of this first edition may confidently be predicted.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., and H. R. M. LANDIS, M.D., Dec., 1905. Lea Brothers & Company.

PROGRESSIVE Medicine once more makes its appeal to all those who would keep abreast of the times in matters medical and surgical. More than the usual amount of interesting material is found in this volume, containing as it does full discussions of diseases of the digestive tract, of the genito-urinary tract, diseases of the kidneys, anesthetics, fractures, etc., and a practical therapeutic referendum.

Dr. Steele's review of the disorders of the digestive tract is well worth the whole volume. It is excellent and useful. He has really made an attempt at covering the field and has succeeded in his task.

Belfield's chapter in surgical kidney diseases is excellent. While Rose Bradford's in the medical side is all that could be wished, since it is more in the line of a series of abstracts rather than a critical digest. Taken as a whole *Progressive Medicine* gives us what it purports to give—a readable and able summary of the years progress.

MOUTH BREATHING. By W. H. FITZGERALD, M.D., Laryngologist to St. Francis Hospital, Hartford, Conn.; Member Hartford Medical Society; Boston City Hospital Alumni Association; Associate Fellow New York Academy of Medicine, etc.

THIS little volume suggests the harmfulness of allowing mouth-breathing to continue and describes the author's method of training in order to prevent it. As it is probable that a certain lack of resistive vitality in the lungs follows from mouth-breathing, the book, though containing less than twenty-five pages, is of some importance.

THE RHEUMATIC DISEASES. By J. ODERY SYMES, M.D. (Lond.), D.P.H.M.R.C.S., L.R.C.P. Assistant Physician and Bacteriologist, Bristol General Hospital. John Lane, London and New York.

THIS monograph contains an excellent review of the true rheumatic diseases. It is thoroughly English in its conscientious treatment of the subject, and very practical suggestiveness. It has nothing, however, or, at most, only a little here and there with regard to the pseudorheumatic diseases, the painful conditions of vague character around joints that are worse on rainy days and which are so often called rheumatic. Doubtless many readers will miss these, but the work would have to be much larger for any adequate treatment of them. We doubt the advisability of including gonorrheal rheumatism and scarlatinal rheumatism among the rheumatic diseases. This is only to perpetuate the old error that these affections were somehow rheumatic in character. Under the same head, however, we might say that rheumatoid arthritis is so different from genuine rheumatism and is so much better described by the term arthritis deformans that it scarcely deserves a place among the rheumatic diseases. This is, perhaps, making too fine a distinction in the present state of our knowledge and especially of the familiarity of the practitioner with these affections. Certainly the chapters devoted to rheumatoid arthritis contain material of great clinical value and therapeutic hints that are of importance. The work is as well done as can be expected in the present rather chaotic condition of our knowledge of the so-called rheumatic diseases.

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By CHARLES H. MAY, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903; Ophthalmic Surgeon to the City Hospitals, Randall's Island, New York; Consulting Ophthalmologist to the French Hospital, etc. Fourth Edition, Revised. With 360 original illustrations, including 21 plates, with 60 colored figures. William Wood & Co., New York.

THE rapid succession of editions demonstrates the value of this book to students especially. The author has a rare faculty for clearness and simplicity of description, and is fitted by long experience to appreciate what is essential and what may better, in behalf of his audience, be omitted. The plates are among the best of their kind, especially those of external diseases in this edition, which are marvels of color printing and remarkably true to life.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK FOR THE YEAR 1905. Published by the Society. 1905.

THE present volume of Transactions of the Medical Society of the State of New York contains a very exhaustive symposium on cerebrospinal meningitis, and another on affections and treatment of the prostate, which were shared in by some of the most distinguished authorities in America. It contains besides an excellent paper by Dr. Frazier on the various methods of opening the skull for the removal of tumors of the brain, and a series of articles on symptoms and the treatment of gall-bladder affections. It is up to the usual high standard of the society's transactions, and special attention is called to certain articles simply to show how much of interest there is in a book such as this, which is unfortunately so little consulted.

DISEASES OF THE SKIN. By GEORGE THOMAS JACKSON, M.D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York; Consulting Dermatologist to the Presbyterian Hospital, New York, and to the New York Infirmary for Women and Children; Member of the American Dermatological Association and of the New York Dermatological Society. Lea Brothers & Co., New York and Philadelphia.

THE fifth edition of this handbook of dermatology retains the same general arrangement and scope of the former editions. Diagnosis, symptomatology and treatment are especially emphasized. Again the diseases are taken up alphabetically, an order which though convenient still disregards all standards of classification. The subject of acne has been still further enlarged, and several other new sections have been added, yet the volume is only slightly increased in size.

The last revision brings the work thoroughly abreast the teaching of the times, and fully maintains the standard of merits which has won for it popular favor in the past.

MEDICAL DISEASES OF EGYPT. By F. M. SANDWYTH, M.D., Consulting Physician to the Khedive and the Cairo Hospital. Henry Kimpton, London.

THE problems of the diseases of the tropics are assuming more lively interest for the general practitioner in this country, as ways are opening for students of medicine to gain a livelihood in regions more remote than previously. Hence books of this kind are appealing more and more to the average American practitioner and are making their place in the library of the student.

The medical diseases of Egypt here discussed are for the most part those with which we are more or less familiar, although a few of the affections undergo modifications foreign to their life history as seen in this country. A few, also, are discussed which are practically unknown here. Thus bilharzia, the plague and pellagra are well handled in this small manual. We can recommend it cordially to those interested particularly in tropical diseases, and also as an important contribution to the study of the geographical distribution of disease.

TRANSACTIONS OF THE WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION, 1904. Press of American Medical Association, Chicago.

THIS volume conveniently presents in serviceable form the proceedings of the fourteenth annual meeting of the Western Surgical and Gynecological Association, held at Milwaukee, Wis., December 28 and 29, 1904. Interesting papers were read by many of the prominent surgeons of the West. These, with the discussion which followed their presentation, are fully incorporated. The subject-matter is carefully indexed and sufficiently illustrated.

SAUNDERS' POCKET MEDICAL FORMULARY. By WILLIAM M. POWELL, M.D., Member of Philadelphia Pathological Society. Containing 1,831 formulas from the best known authorities. Seventh Edition, Revised. W. B. Saunders & Company, Philadelphia and London.

Saunders Medical Formulary is too well known to need any special words of praise from us. The present edition is an improvement over the last, and is more liberally interleaved for additional formulæ. It continues to be of up-to-date usefulness and may be confidently recommended.

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